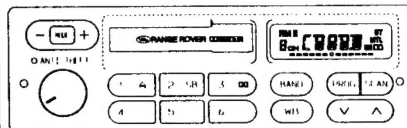


Service Manual

PIONEER
The Art of Entertainment



ORDER NO.
CRT1465

ANTI-THEFT CD-READY RADIO

KEX-910ZRV

US, X1H

Note:

- See the separate manual CX-156 (CRT-468) for the cassette mechanism description.
- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.
- RANGE ROVER OF NORTH AMERICA, INC. Part No. : RTC7713.

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1. SPECIFICATIONS

TUNER

FM Receiver

| | |
|-------------------------------|-------------------|
| Usable Sensitivity (Load) | 1 μ V |
| [30 dB(N + D)/(S + N + D)] | 70 dB |
| Signal/Noise Ratio (1 mV) | 1 V |
| Overload Signal | 40 dB |
| AM Rejection | 110 dB |
| IF Rejection | 60 dB |
| Image Rejection | 70 dB |
| Spurious Rejection | 60 dB |
| Alternate Channel Selectivity | 2 dB |
| Capture Ratio | 45 dB |
| Stereo Separation (1 kHz) | 0.5% |
| Stereo Distortion (1 mV) | 87.7 to 107.9 MHz |
| Frequency Range | 10.7 MHz |
| Intermediate Frequency | |

AM Receiver

| | |
|--------------------------------------|-----------------|
| Usable Sensitivity [20 dB N/(S + N)] | 10 μ V |
| Signal/Noise Ratio (5 mV) | 60 dB |
| Selectivity (\pm 10 kHz) | 110 dB |
| IF Rejection | 110 dB |
| Image Rejection | 60 dB |
| Distortion (5 mV RF) | 0.5% |
| Frequency Range | 530 to 1710 kHz |
| Intermediate Frequency | 450 kHz |

WB Receiver

| | |
|----------------------------|------------------------|
| Usable Sensitivity (Load) | 0.3 μ V |
| [20 dB(S + N)/(S + N + D)] | 65 dB |
| Signal/Noise Ratio (1 mV) | 0.6% |
| Distortion | 162.400 to 162.550 MHz |
| Frequency Range | (25 kHz Step) |
| Intermediate Frequency | |
| 1st I.F. | 10.7 MHz |
| 2nd I.F. | 450 kHz |

CASSETTE DECK

| | |
|--------------------------------|-----------------|
| Wow and Flutter WRMS-JIS | 0.07% |
| Signal/Noise Ratio | 50 dB |
| Dolby [®] B NR Effect | 10 dB |
| Separation | 50 dB |
| Cross Talk | 55 dB |
| Distortion | 1% |
| Frequency Response (-3 dB) | |
| Normal | 40 Hz to 15 kHz |
| Metal | 40 Hz to 18 kHz |

AUDIO CONTROL

| | |
|-------------------------|-------------|
| Tone Control Response | |
| Treble Boost/Cut 10 kHz | \pm 10 dB |
| Bass Boost/Cut 100 Hz | \pm 10 dB |

2. DISASSEMBLY

● Case

1. Insert and turn a flat screwdriver to remove case.
2. Raise case to remove.

● Grille Assy

1. Remove knob.
2. Press tab at five locations indicated by arrows, and pull out grille assy.

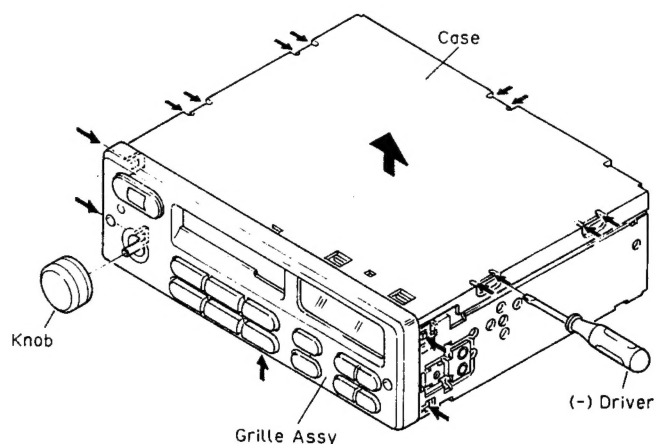


Fig. 1

● Cassette Mechanism Assy

1. Remove four screws.
2. Disconnect connector, and then raise cassette mechanism assy to remove.

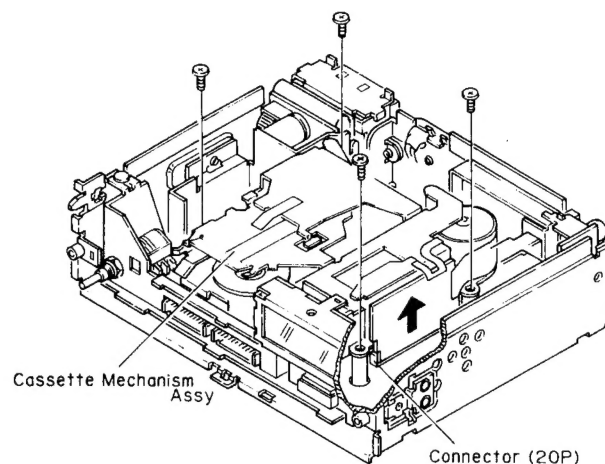


Fig. 2

● Chassis Assy

1. Remove two screws. (Fig. 3)
2. Raise up on power supply unit and LCD unit. (Fig. 3)
3. Remove five screws and holder. (Fig. 4)
4. Unbend the claws indicated by arrow until straight. (Fig. 4)
5. Raise up on tuner amp unit to remove it from the chassis assy. (Fig. 4)

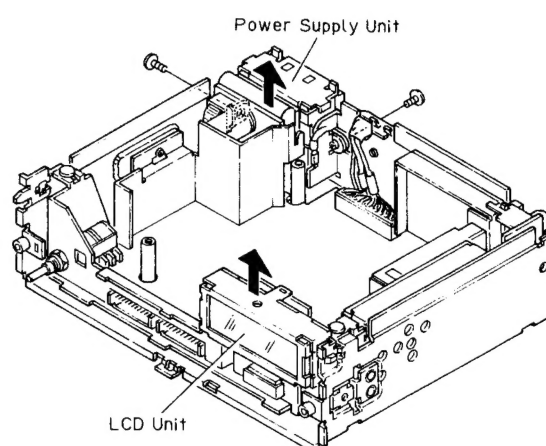


Fig. 3

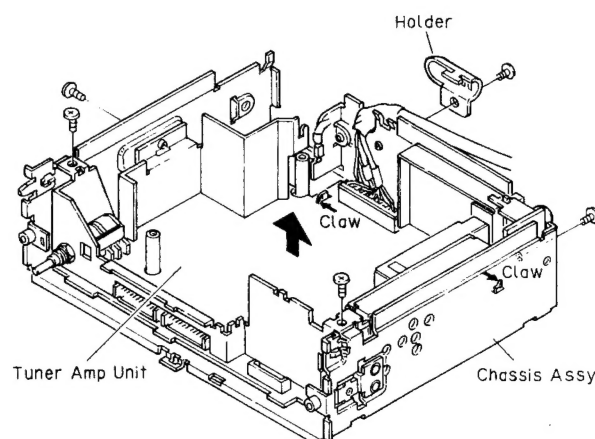


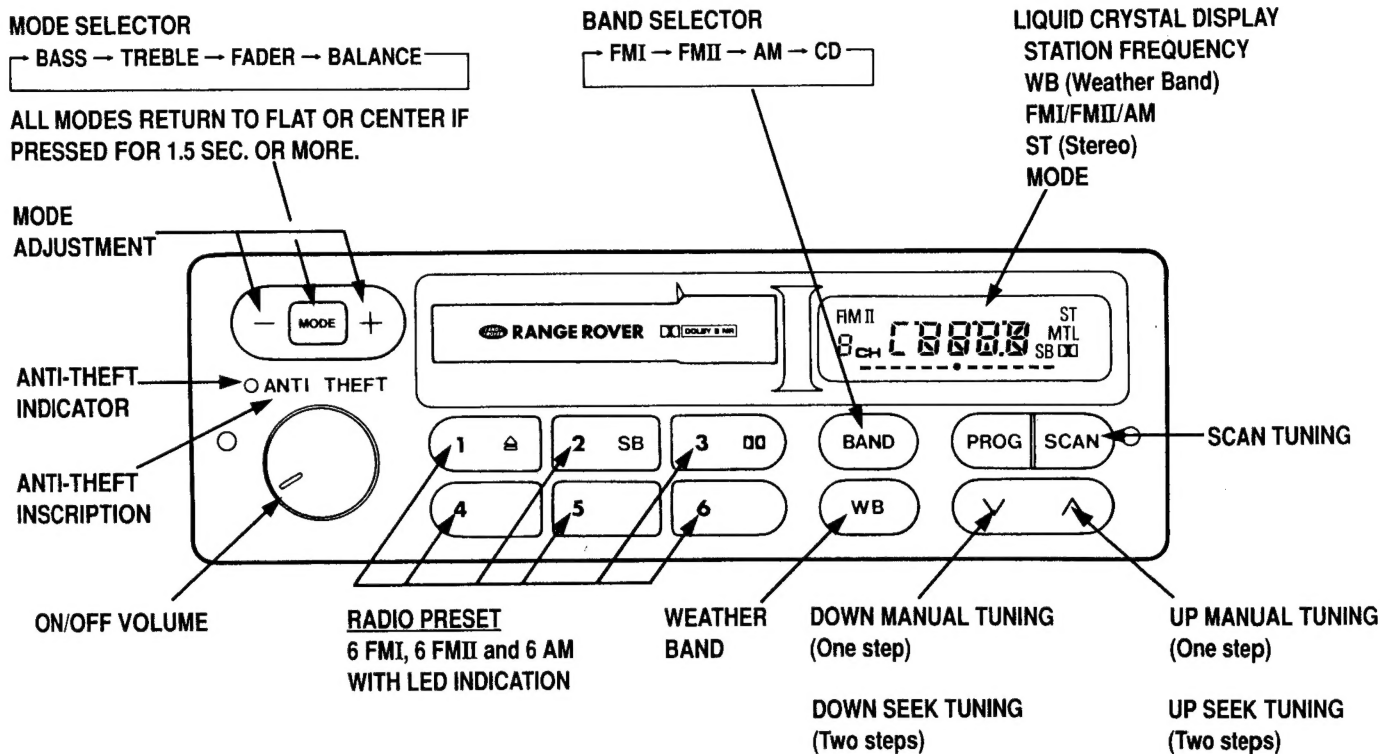
Fig. 4

3. FEATURE DESCRIPTIONS

- Anti-theft microprocessor system.
- Digital phase-locked loop frequency synthesizer automatically tunes and locks onto the broadcast frequency indicated on the frequency display.
- Automatic tape equalization (70 μ sec. or 120 μ sec.).
- Liquid crystal display.
- Separate bass, treble, fader and balance control.
- Seek tuning for radio.
- Up-scan tuning for radio.
- Programmable memory for 12 FM (6 each for FMI and FMII) and 6 AM stations.
- Weather band with seek tuning capability.
- Ignition-key-off pause mode for tapes.
- Maintenance indication for tape deck (every 15 hours of use).
- Dual function buttons for radio preset and tape operation.
- Electronic tuning.
- Power loading/soft eject.
- Automatic local/distance attenuation.
- Dolby® * B noise reduction for tape.
- Auto reverse at end of tape.
- Tape skip blank.
- Tape scan.
- Built-in automatic tape slack canceller (ATSC).
- Rotating tape head.
- Automatic Loudness control.
- Telephone muting. (Optional)

*Dolby® is a registered trademark of Dolby Laboratories, Inc.

4. RADIO MODE CONTROL LOCATION AND OPERATION



OPERATING THE RADIO

FM/AM

Press the BAND button and FMI, FMII, AM or CD will appear on the display indicating which band is being received. When FMI, FMII or AM is chosen, the currently tuned frequency is also displayed. Press the button to change from band to band.

AUTOMATIC WEATHER BROADCAST SELECTION

If you want to interrupt what you're listening to and get a weather check, just press the WB button. The WB indicator will go on, and the radio will switch to the weather band and automatically find the strongest weather broadcast in your area. (This can take a while.) If it can't find a strong enough signal, or if there isn't a signal at all, the radio will beep, and NO and WB will flash alternately on the display. To go back to what you were listening to, press the WB button again.

MANUAL/SEEK TUNING

To tune manually or make the radio automatically seek stations, use the TUNING buttons. To manually tune up the band, press the right button in one click. To manually tune down the band, press the left button in one click. To make the radio automatically tune to the next tunable station up the band, press the right button in two clicks. To do the same thing down the band, press the left button in two clicks. When the radio starts seeking a station, SEEK appears on the display for a few moments.

STEREO

The ST indicator will light up on display whenever a stereo broadcast is received. The indicator will flash when signal strength diminishes.

AUTOMATIC LOCAL/DISTANCE SWITCHING

New electronic circuitry automatically selects the local/distance mode for best reception, eliminating the need for manual switching.

SCAN TUNING

To browse through the band until you find a station you like, press the SCAN button. The SCAN indicator will go on for a few moments, and the radio will automatically hop from station to station up the band, pausing for seven seconds at each. Weak stations will be skipped over. When you hear a program you want to listen to, press the SCAN button again to stop the scan and stay on that station.

FM RECEPTION

Signal reflections or blockages caused by hills or tall buildings may cause hissing and fluttering noises in FM reception. FM signal strength diminishes beyond 25 miles from the transmitter.

PRESET STATIONS

To listen to a station whose frequency you've preset in the radio's memory, just press the appropriate PRESET button. The display will show the preset memory number (e.g., 3 CH) of the station you've selected.

PROGRAMMING/REPROGRAMMING PRESET STATIONS

Tune in the desired radio station. Then push a PRESET selection button for 1.5 seconds. When you hear a beep, the frequency has been memorized. Repeat this procedure for the remaining preset station selectors on the FM (FMI and FMII) and AM bands.

NOTE: The radio programming controls have triple functions. Each button can be set to one FMI, one FMII and one AM station.

BASS, TREBLE, FADER AND BALANCE CONTROL

Each time the MODE button is pressed, control of bass, treble, fader, or balance is selected in turn. The selected mode is shown on the display and can be adjusted by the + and - buttons. About five seconds after adjustment, the display returns to its previous state.

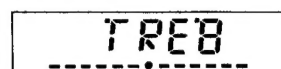
When the MODE button is pressed continuously for more than 1.5 seconds, the level of each mode returns to flat or center. At this time a beep is sounded and "FLAT" is displayed on the display.

BASS



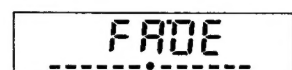
(-) ← . → (+)
CUT FLAT BOOST

TREBLE



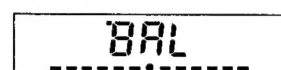
(-) ← . → (+)
CUT FLAT BOOST

FADER



(-) ← . → (+)
REAR CENTER FRONT

BALANCE

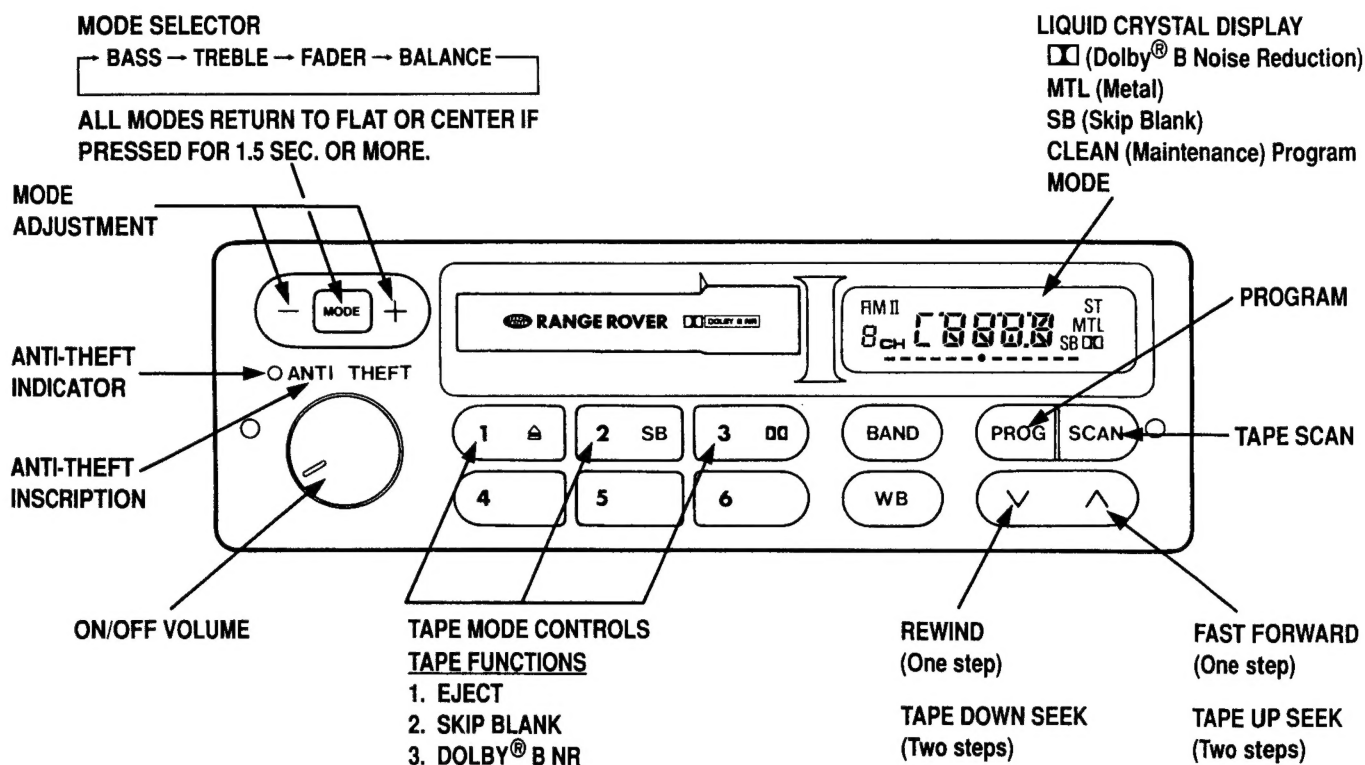


(-) ← . → (+)
LEFT CENTER RIGHT

MUTING DURING A PHONE CALL (OPTIONAL)

If you have a cellular phone with car audio muting in your Range Rover, when a call comes in, TEL will appear on the display, and the car audio volume will be automatically turned down, and if you are listening to the cassette or compact disc player, it will automatically pause. When you hang up, the car audio will carry on as before.

5. TAPE MODE CONTROL LOCATION AND OPERATION



OPERATING THE CASSETTE PLAYER

CASSETTE OPERATION

To use the cassette player, turn the radio on. When a cassette is inserted, the unit will switch automatically from radio to tape mode.

FAST FORWARD/REWIND

The fast forward/rewind button has a two-step operation. Press the right side of button one step to fast forward; press the left side of button one step to rewind. Repeat the same action to stop the appropriate function. The logic circuitry in your radio will automatically determine the right direction for fast forward or rewind. While the tape is fast forwarding, the display shows FF; while the tape is rewinding, it shows RW.

A standard cassette has two sides and can be played in either direction. When in play, the top side of a cassette will be indicated as "1" on the display. The bottom side will appear as "2".

TAPE SEEK

Pressing the fast forward/rewind button two steps (as far as it will go) activates the seek mode. SEEK will appear on the display. To move to the next selection on your tape, press the right side of button (as far as it will go). The tape will move rapidly to the next selection. To restart the current selection, press the left side of button in the same manner.

Tape Seek will only function correctly if there are four seconds of silence between selections on your tape. Excessive noise between selections on poorly recorded tapes may interfere with these functions.

The cassette automatically ejects from the unit if tape setting operations cannot be completed within a few seconds. This may be caused by a faulty or damaged cassette. Determine the cause of the problem or use a different cassette.

REVERSING TAPE DIRECTION

To reverse tape direction, push the PROG button. The tape will reverse automatically when a side complete.

TAPE SCAN

If you wish to scan through the tape until a desired selection is found, press the SCAN button. Each selection on the tape will play for approximately 13 seconds. (The display will show SCAN.) Scanning stops when the SCAN button is pressed again.

AUTOMATIC EQUALIZATION

The playback equalization of normal tapes differs from that of chrome and metal tapes. When a high-bias tape, including metal, is inserted, the unit will automatically change to the correct equalization level, and MTL will be indicated on the display.

TAPE EJECT (1 ▲)

Press the EJECT button -1 ▲- to eject tape cassette and return to the radio mode.

SKIP BLANK (2 SB)

The SKIP BLANK button -2 SB- automatically advances the tape to the next recorded portion when a blank section exceeds approximately 15 seconds. When there is a long, unrecorded portion at the end of the tape, the unit advances the tape to the end and then starts to play the other side. When the SKIP BLANK button is pushed, SB will appear on the display. Additionally, SEEK will be displayed while the tape is advancing.

DOLBY® B NOISE REDUCTION (3 □□)

Use the Dolby® B Noise Reduction function button -3 □□- to reduce the level of hiss on Dolby® B-encoded cassettes. If you do not use the Dolby® B noise-reduction function with Dolby® B encoded tapes, the high-frequency response will be intensified. If you do use this function with non-encoded tapes, high-frequency response will be diminished.

*The word "Dolby" and the double-D symbol are registered trademarks of Dolby Laboratories, Inc.

IGNITION-KEY-OFF PAUSE MODE

If the ignition is turned off while a tape is playing, the unit automatically enters the pause mode. The unit will return to normal play mode when the ignition is turned on. The unit will not accept another cassette when it is in the pause mode.

AUTOMATIC TAPE SLACK CANCELLER (ATSC)

The automatic tape slack canceller removes any slack in the tape before play to protect the tape and extend its life.

ROTATING TAPE HEAD

The rotating tape head in your tape cassette player ensures accurate horizontal tape alignment in both directions for optimum sound level reproduction and frequency response.

NOTE: *The Range Rover Anti-Theft Radio contains a full-logic computer-controlled 3-motor drive which controls the automatic tape slack canceller (ATSC) and rotating tape head mechanism. During cassette tape loading/unloading or tape transport directional changes, the motor drive emits a precision mechanical sound which indicates normal tape cassette player operation.*

PRECAUTIONS

1. Always remove cassette from unit when it is not in use.
2. Protect your tapes by keeping them in a cassette holder. Do not expose them to heat, dust, dirt or strong magnetic sources such as electric motors or television sets.
3. Make sure there is no slack in your tape before you insert it into the unit. A loose tape can damage the unit and/or the tape itself. Loose tape can be tightened by inserting a pencil or similar instrument into the spindle hole and turning it until the tape is no longer slack.
4. Use only high-quality cassettes. 90- or 120-minute tapes are not recommended because their thickness may not accommodate the variations in vehicle interior temperatures.
5. Prevent foreign objects from entering the cassette loading slot as they can damage the precision mechanism and tape heads.

CLEANING THE CASSETTE PLAYER MECHANISM

By the time the cassette player has clocked up 15 hours of operation, the head, capstans, and pinch rollers will be getting dirty. To warn you about this, the player will beep when it hits the 15-hour mark, and HEAD and CLEAN will flash alternately on the display. Eject the cassette you're listening to as soon as it is safe or convenient (HEAD and CLEAN will stop flashing), and load a cleaning cassette. Make sure you know how to use the cleaning cassette before you do this. If you notice the sound reproduction is getting bad, use your cleaning cassette straight away; don't wait for the 15-hour warning.

Clean heads and capstans by inserting a good quality head-cleaning cassette into the tape-loading slot, and allowing it to run for approximately 40 seconds. Push the program selector to engage the second capstan and pinch roller for an additional 40 seconds.

NOTE: Make sure SKIP BLANK function is disengaged before inserting the head-cleaning cassette. Head-cleaning cassette will not work properly if SKIP BLANK function is not disengaged, resulting in insufficient cleaning of the play back heads and capstans.

MODIFICATIONS

This unit is designed as part of an integrated audio system. The installation of alternative or additional audio components may cause damage which **will not be covered by your vehicle warranty.**

OPERATING THE CD PLAYER

CD OPERATION

To use the CD player, turn the radio on and press the BAND button. The display indicates FMI, FMII, AM or CD. Select CD to switch from radio mode to CD mode.

DIRECT DISC SELECTION

DIRECT DISC SELECT buttons 1 through 6 correspond to the magazine tray numbers. When there is a disc in a tray, the number lights on the corresponding button. To play a disc in the magazine, press one of the buttons whose indicator is lit.

NOTE:

- Nothing will happen if you press a button whose indicator is not lit. The display will read "NO" for approximately 10 seconds.
- When a disc is selected there is a short pause before playback begins. The changer is returning the previous disc to the magazine and loading the selected disc.

FAST FORWARD/REVERSE

The fast forward/reverse button has a two-step operation. Press the right side of button one step to fast forward; press the left side of button one step to reverse. During the fast forward operation, the display shows FWD; during the reverse operation, it shows REV.

TRACK SEARCH

Pressing the fast forward/reverse button two steps (as far as it will go) activates the track search mode. To advance to the next track, press the right side of button (as far as it will go). To return to the previous track, press the left side of button in the same manner. Push and hold the button down (as far as it will go) to move forward or backward through the tracks.

MUSIC SCAN (HIGHLIGHT SCAN)

When the SCAN button is pressed, the word "SCAN" appears on the display and tracks will be played one after another for approximately 10 seconds, starting one minute from the beginning of each track. Press the button again when you find a track you want to listen to: the player will return to normal playback and continue with the current track.

RANDOM PLAY

Press the PROG button for random play. (RND appears on the display.) This function randomly plays one track after another, choosing from all the tracks on all the discs in the magazine randomly. Press the PROG button again to cancel random play.

NOTE: Since tracks are selected at random, it is possible that the same track may be played twice in succession.

MAGAZINE CHECK

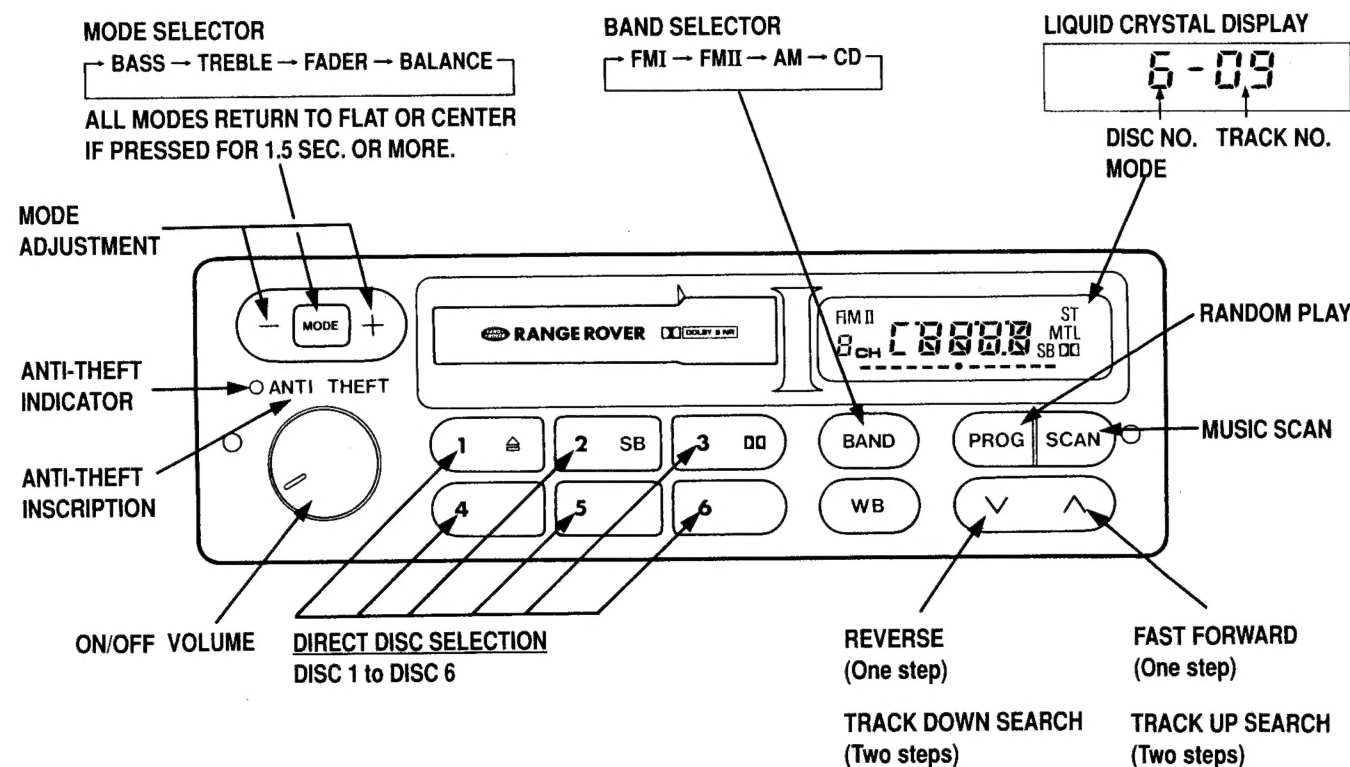
When there is no magazine in the CD changer, the word "NO" appears on the display to advise you to load a magazine.

NOTE: After you load a magazine, there is a short pause before playback begins. The changer is checking each of the discs in the magazine. (The display indicates "LOAD".)

DISC CHECK

An "Err" indication is shown on the display and operation of the system becomes impossible when there are no discs in the magazine or when the discs are loaded into the magazine with their labels facing upwards. Whenever this message appears, remove the magazine and check the discs.

6. CD MODE CONTROL LOCATION AND OPERATION



7. BLOCK DIAGRAM

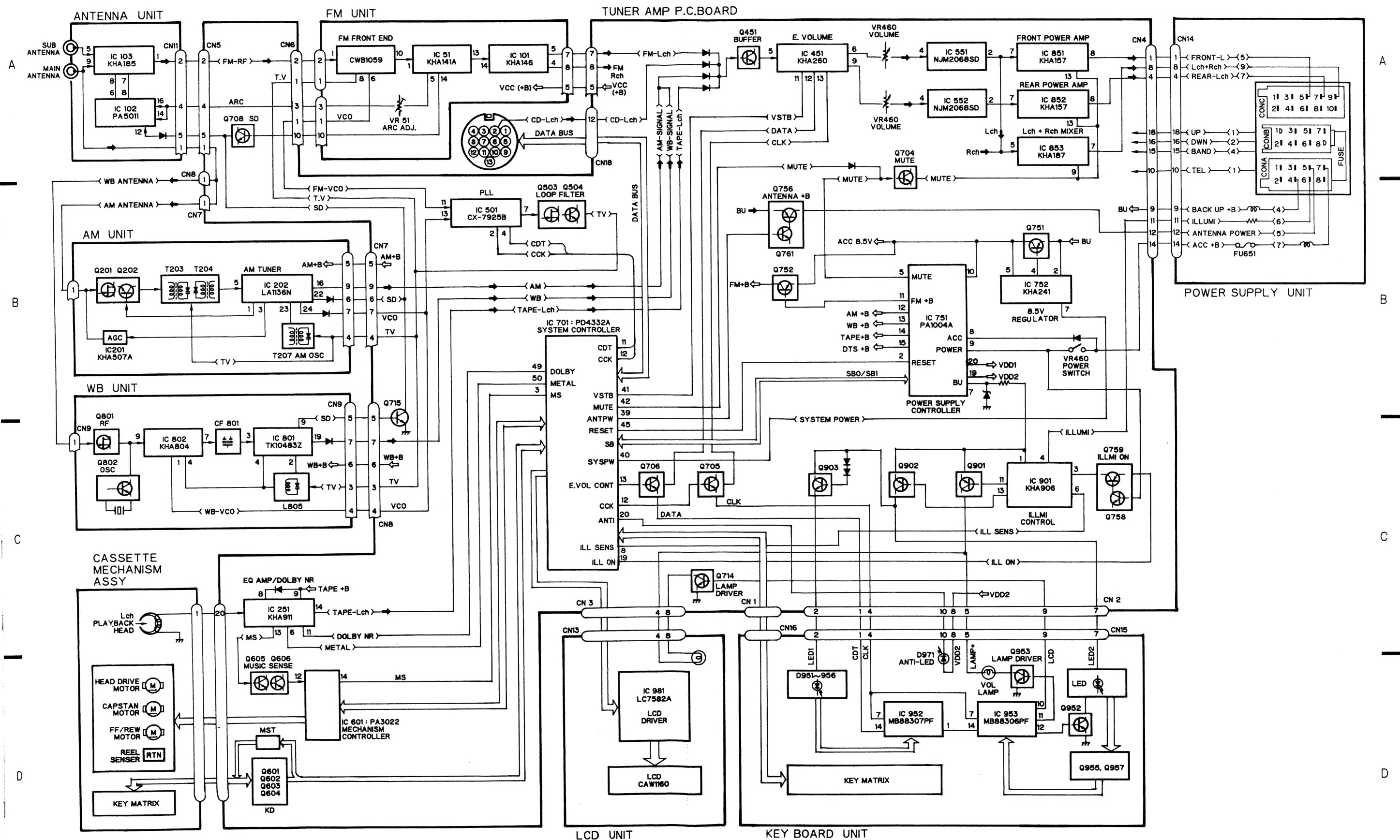
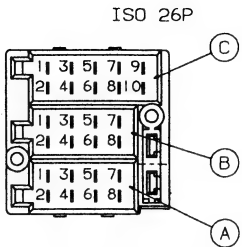
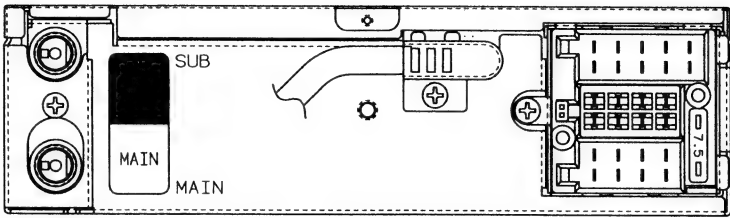


Fig. 5

8. CONNECTOR FUNCTION DESCRIPTION

| PIN NO. | |
|---------|--------------|
| 1 | L.CH ISO GND |
| 2 | CD L.CH |
| 3 | R.CH ISO GND |
| 4 | CD R.CH |
| 5 | GND |
| 6 | GND |
| 7 | ACC |
| 8 | D.GND |
| 9 | BSRD |
| 10 | BRST |
| 11 | BRXEN |
| 12 | DATA |
| 13 | BSCK |
| E | SHIELD GND |



9. ADJUSTMENT

9.1 TEST MODE

Test mode is mainly used in adjustment of CD multi-player.

- Switching to test mode
While pressing the BAND, 3 Keys together, switch the back-up ON.
- Canceling test mode
Switch the CD multi-player and KEX-910ZRV back-up OFF.
- Key functions during test mode
The CD multi-player, deck and tuner are selected by the **BAND** key.

a) CD multi-player

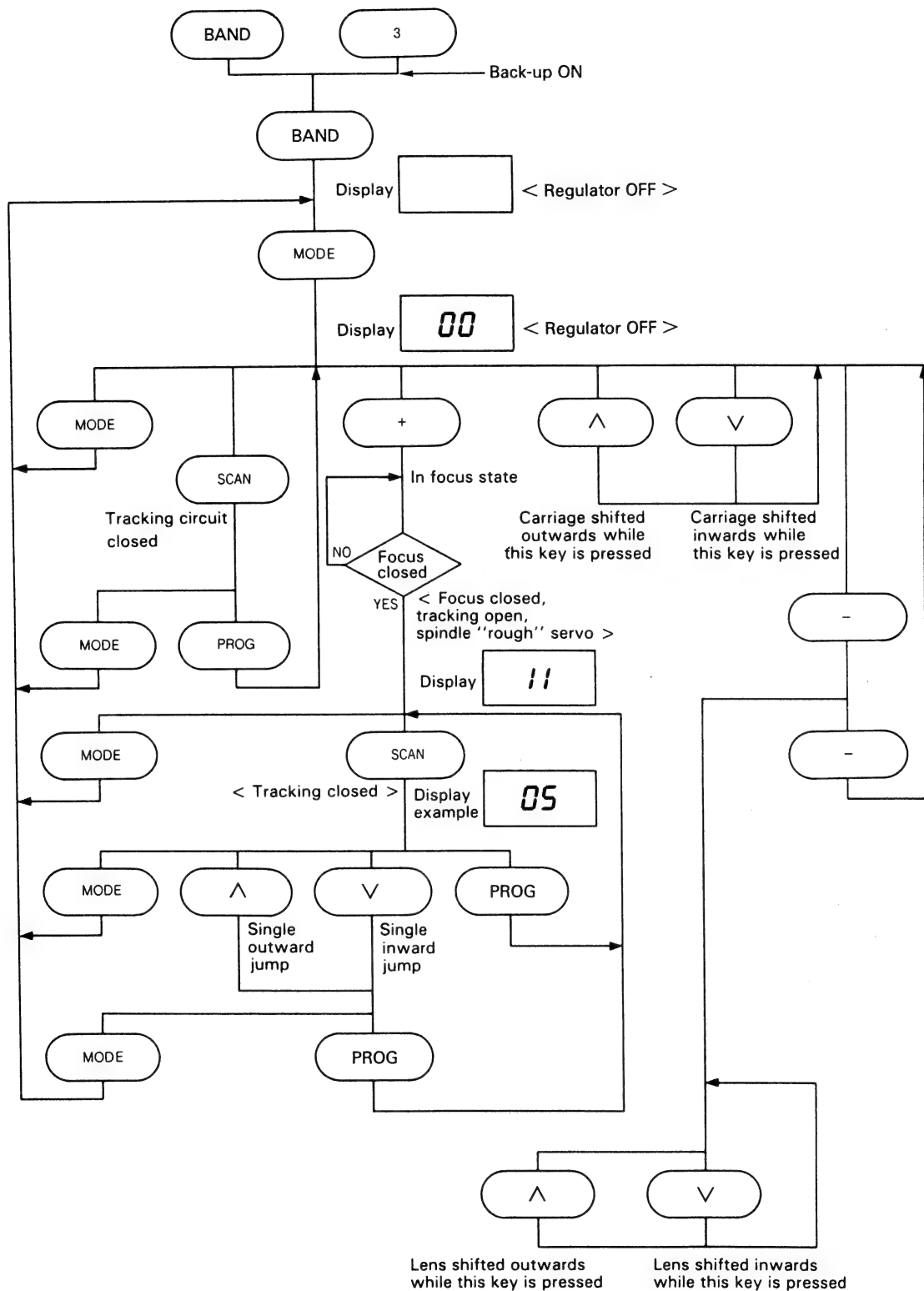
| Key | Function |
|------|-----------------------------|
| MODE | Regulator ON/OFF |
| ∧ | FWD kick |
| ∨ | REV kick |
| SCAN | Tracking close |
| PROG | Tracking open |
| + | Focus close |
| – | Carriage/tracking switching |

NOTE:

Concerning operation in the test mode.

- (1) Continuous carriage movement is not possible by pressing the ∧ or ∨ keys. Either press the keys repeatedly or move the carriage manually.
- (2) Spindle kick is not possible during focus search. Rotate the disc manually (i.e. at first rotate it a little by hand, and then it will continue to rotate).

● Flow Chart



9.2 AUDIO/TUNER ADJUSTMENT

NOTICE:

Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.

Z: Output impedance of SSG.

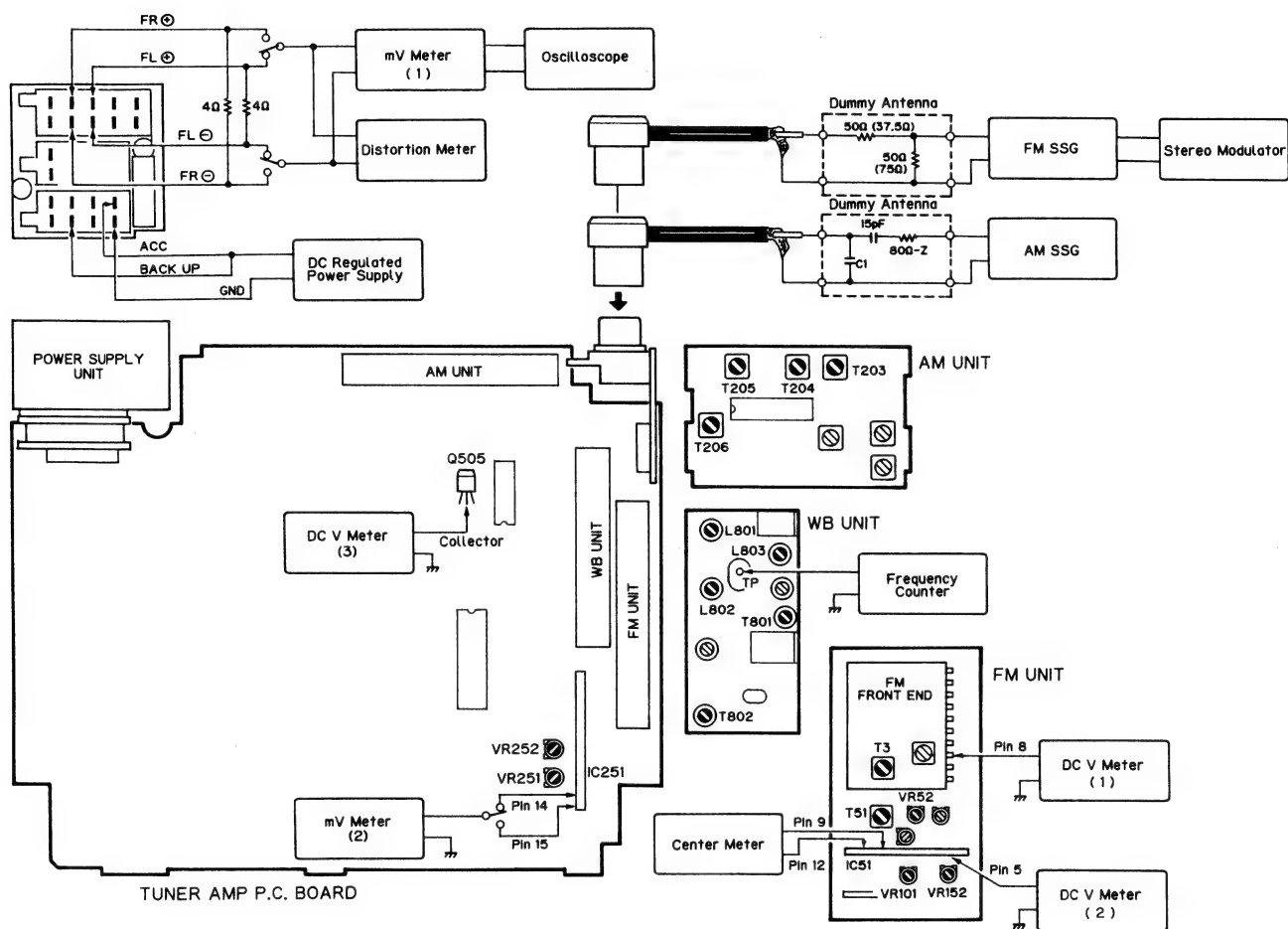


Fig. 7

FM ADJUSTMENT ※ Stereo MOD.: 1kHz, L+R=90% , Pilot=10%

| | No. | FM SSG(400Hz, 100%) | | Displayed Frequency (MHz) | Adjusting Point | Adjustment Method (Switch Position) |
|-----------|-----|---------------------|--------------------|---------------------------|-----------------|---|
| | | Frequency (MHz) | Level (dB μ V) | | | |
| IF | 1 | 98.1 Unmodulated | 60 | 98.1 | T51 | Center Meter:0 |
| Front End | 1 | | | 87.7 | — | Verify that DC V Meter(1) is more than 1.4 ± 0.5 V. |
| | 2 | | | 107.9 | — | Verify that DC V Meter(1) is more than 7.5 ± 0.1 V. |
| | 3 | 98.1 | 15 | 98.1 | T3 | mV Meter(1):Maximum |
| ARC | 1 | 98.1 | 60 | 98.1 | VR51 | DC V Meter(2): 2.5 ± 0.1 V |
| MPX | 1 | ※98.1 | 60 | 98.1 | VR101 | mV Meter(1):Separation Maximum |
| | 2 | ※98.1 | 35 | 98.1 | VR152 | mV Meter(1):Separation 5 dB |
| | 3 | 98.1 | 21 ± 5 | 98.1 | VR52 | Seek stop |

AM ADJUSTMENT

| | No. | AM SSG(400Hz, 30%) | | Displayed Frequency (kHz) | Adjusting Point | Adjustment Method (Switch Position) |
|-------------|-----|-----------------------|--------------------|---------------------------|---------------------|--|
| | | Frequency (kHz) | Level (dB μ V) | | | |
| Tuning Volt | 1 | 1,710 | — | 1,710 | — | DC V Meter(3):Less than 8.0V |
| | 2 | 530 | — | 530 | — | DC V Meter(3):More than 0.8V |
| Tracking | 1 | 600 | 20 | 600 | T203, 204, 205, 206 | mV Meter(1):Maximum |
| | 2 | 600 1,000 1,400 | 35 | 600 1,000 1,400 | — | The difference between the maximum and minimum output levels at 600kHz, 1,000kHz and 1,400kHz must be 6dB or less. |

WB ADJUSTMENT

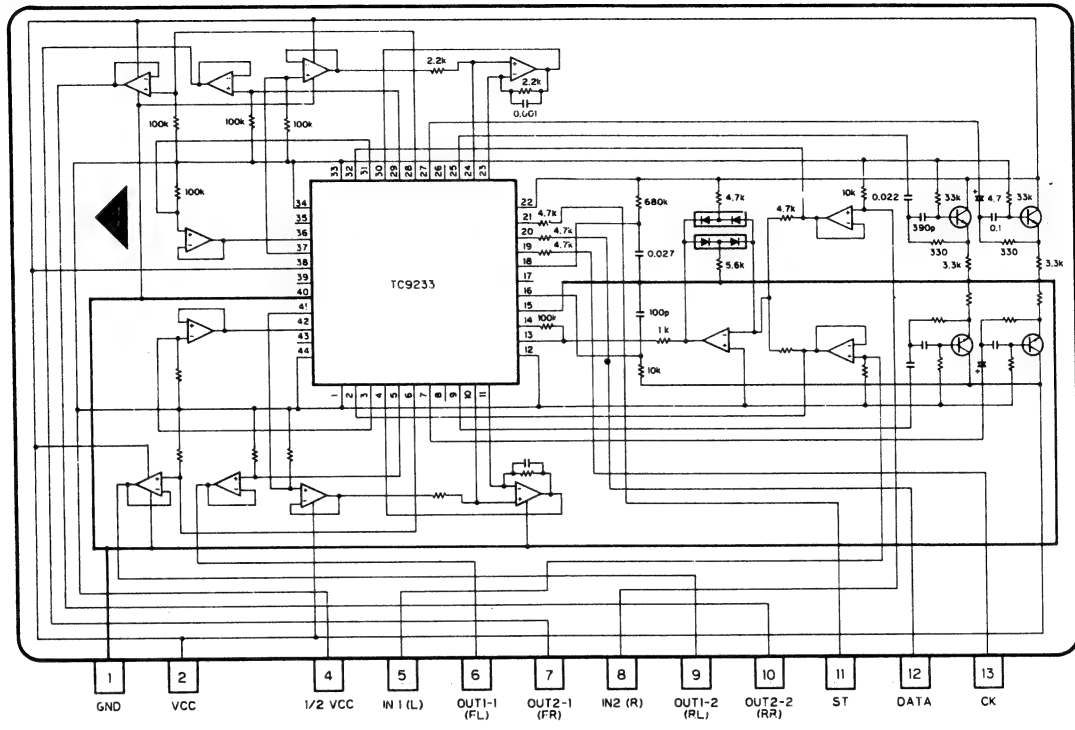
| | No. | FM SSG (400Hz, 100%) | | Displayed Frequency (MHz) | Adjusting Point | Adjustment Method (Switch Position) |
|--|-----|----------------------|--------------------|---------------------------|---------------------|---|
| | | Frequency (MHz) | Level (dB μ V) | | | |
| | 1 | | | CH-3/WB | L803 | Frequency Counter: 151.775kHz NOTE: After adjusting L803, disconnect frequency counter. |
| | 2 | 162.400 | 60 | CH-2/WB | Volume control knob | mV Meter(1): 10dBs |
| | 3 | 162.400 | 60 | CH-2/WB | T802 | Distortion Meter: Minimum |
| | 4 | 162.475 | 10-15 | CH-3/WB | L801, L802 | mV Meter(1): Maximum |
| | 5 | 162.475 | 10-15 | CH-3/WB | T801 | mV Meter(1): Maximum |

DOLBY NR ADJUSTMENT

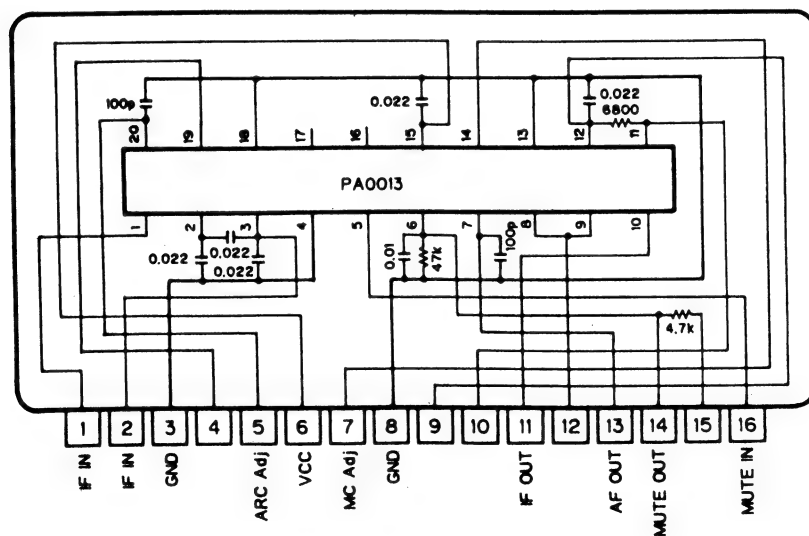
| No. | Cassette Tape | Adjusting Point | Adjustment Method (Switch Position) |
|-----|---------------------------|-------------------------|--|
| 1 | NCT-150 (400Hz, 200nwb/m) | VR251 (Lch) VR252 (Rch) | mV Meter(2): 337mV (-7.2dBs) (DOLBY NR Switch: OFF) |

• ICs

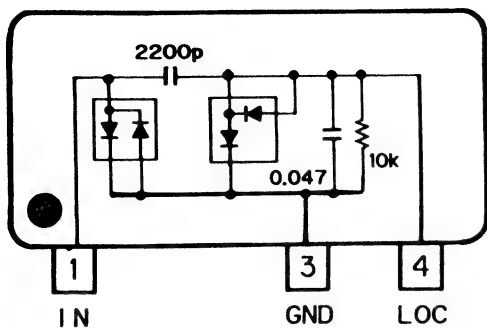
KHA260



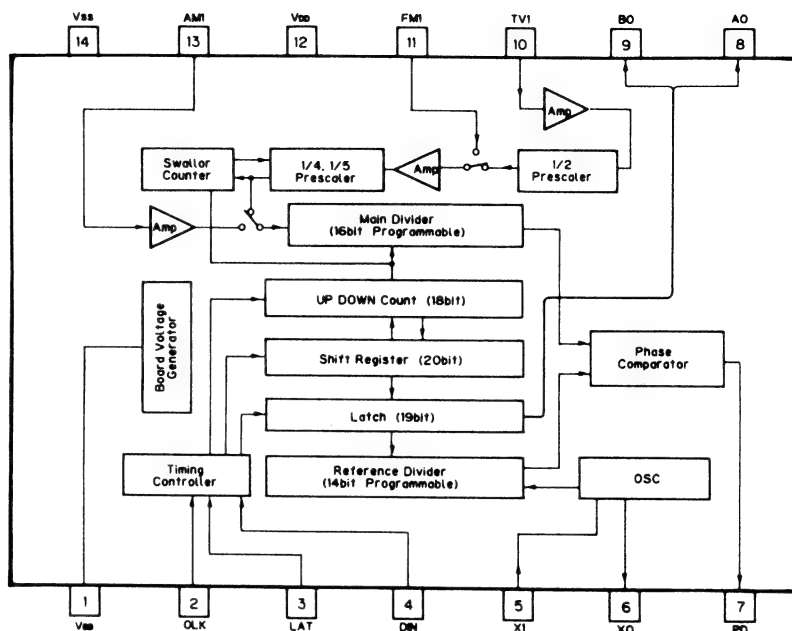
KHA141A



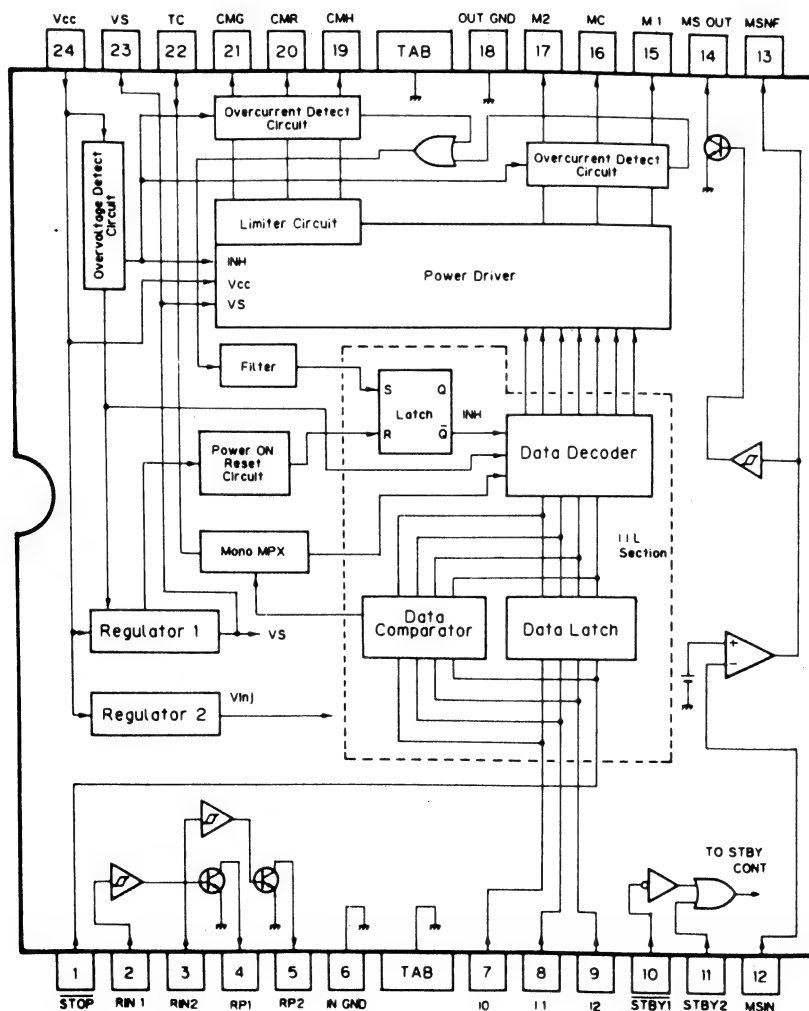
KHA507A



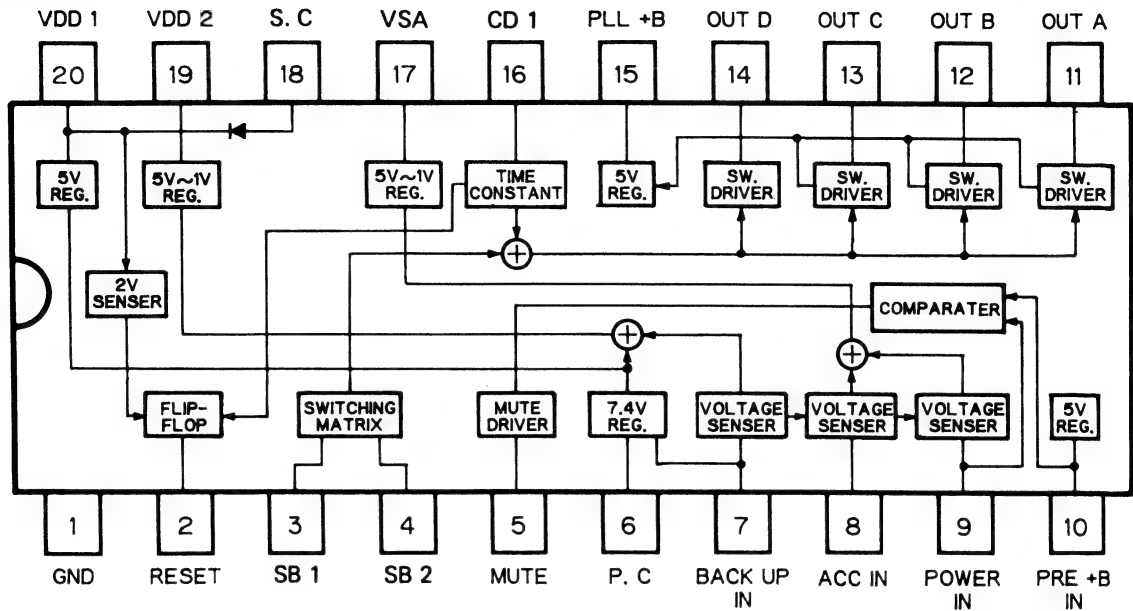
CX-7925B



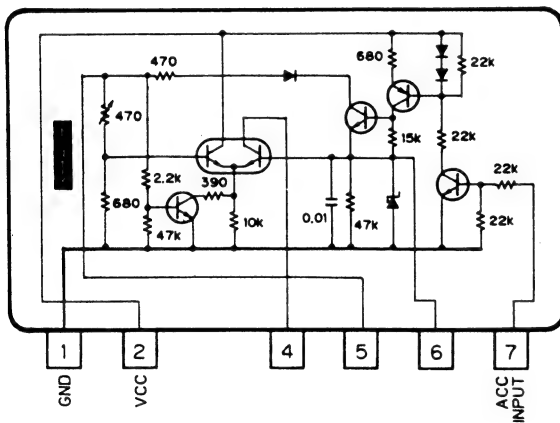
PA3022



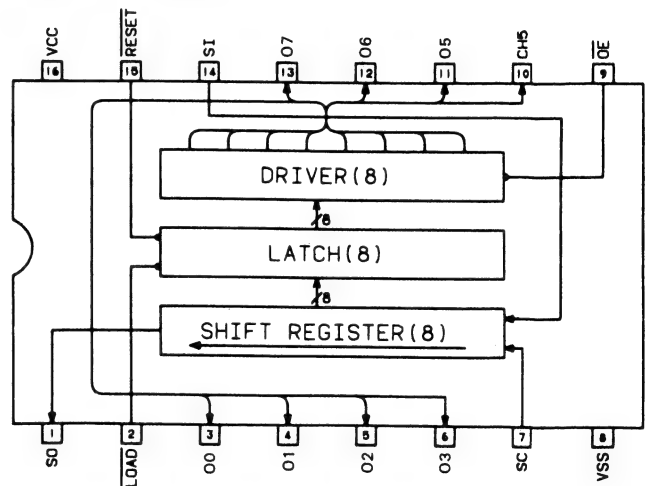
PA1004A



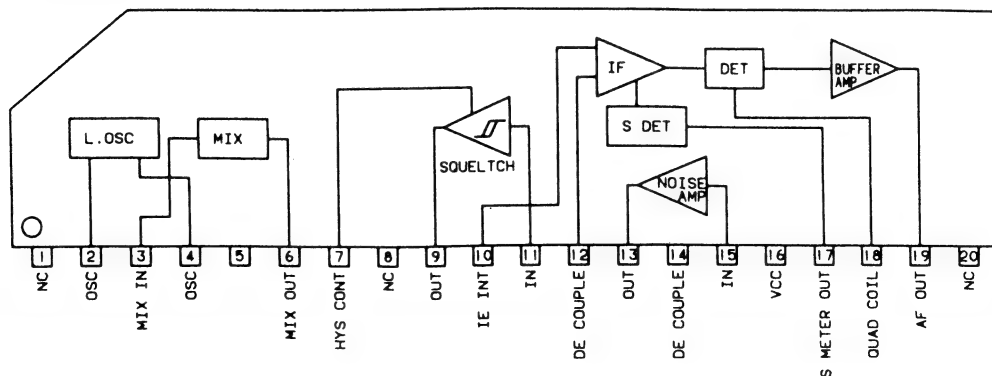
KHA241



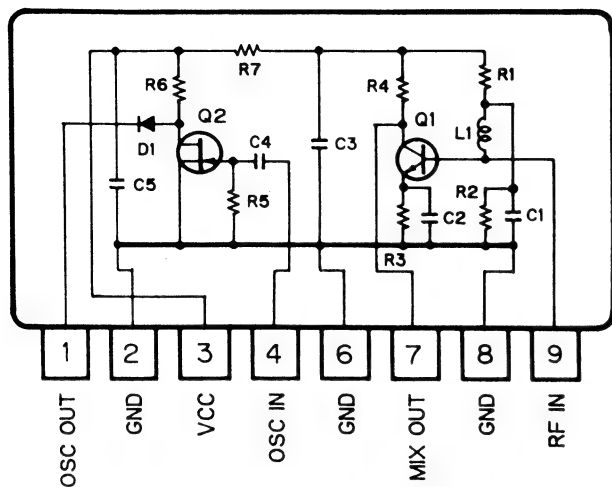
MB88307PF, MB88306PF



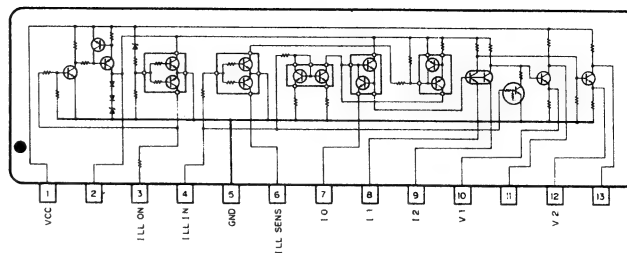
TK10483Z



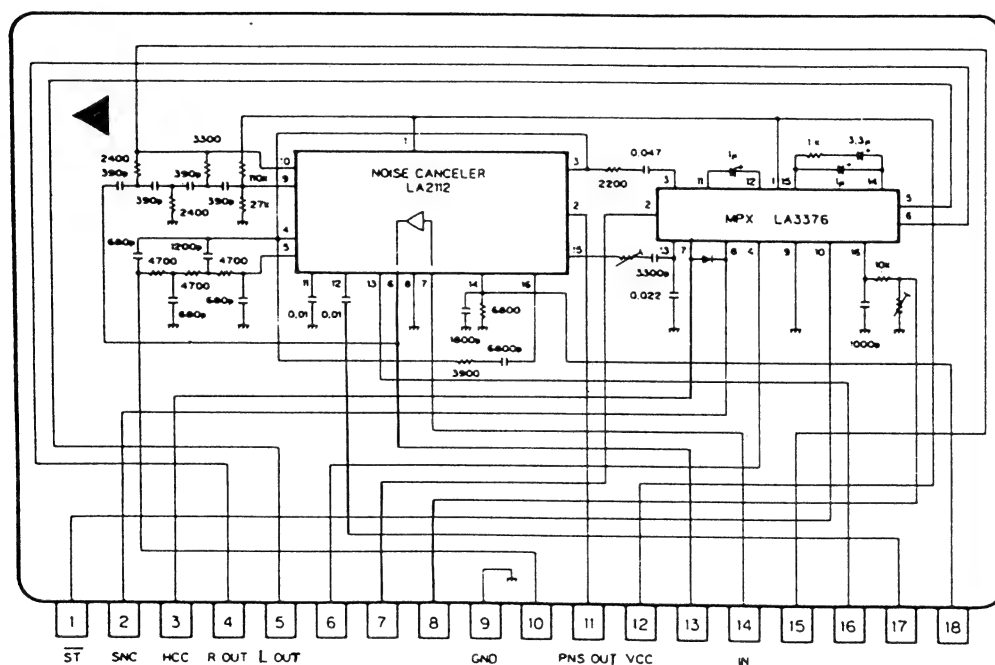
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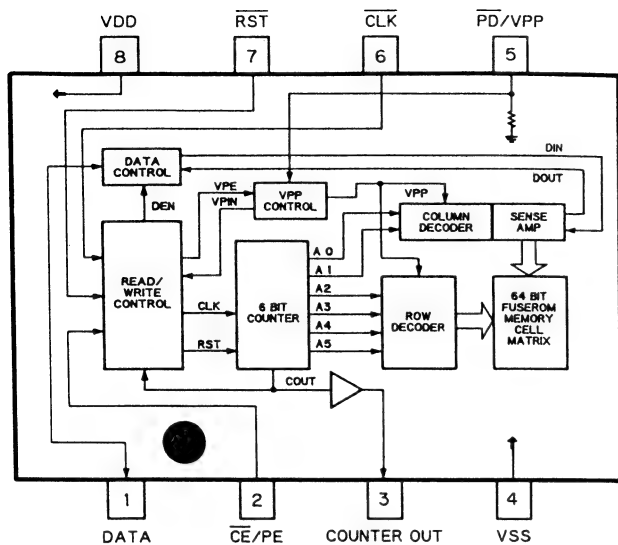
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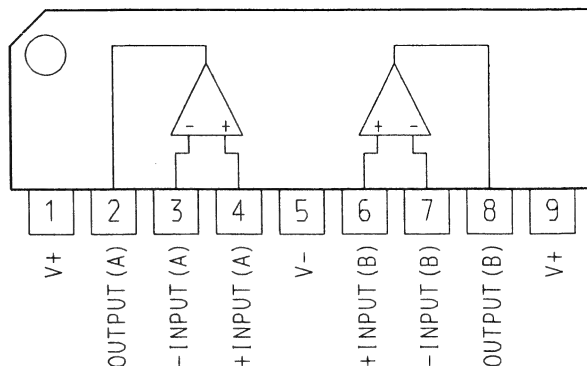
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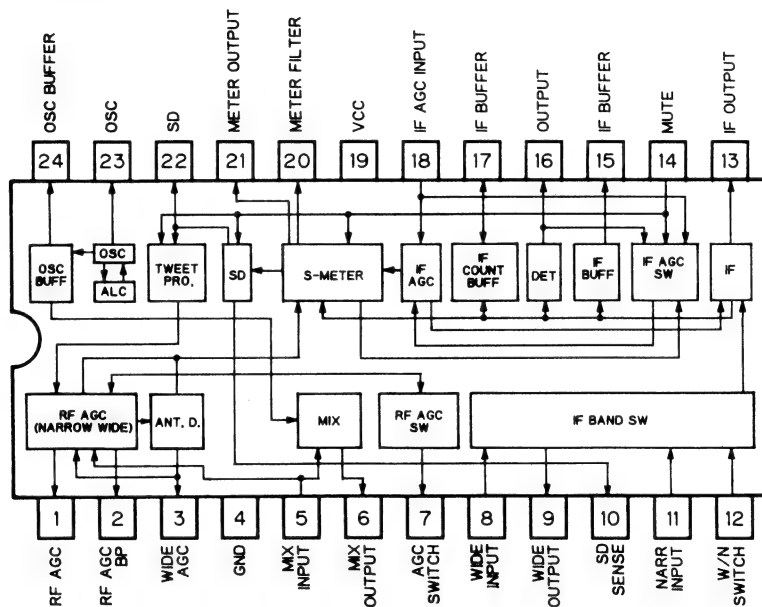
P-2100R



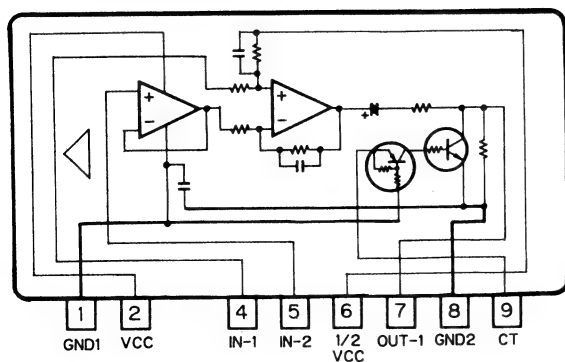
NJM2068SD



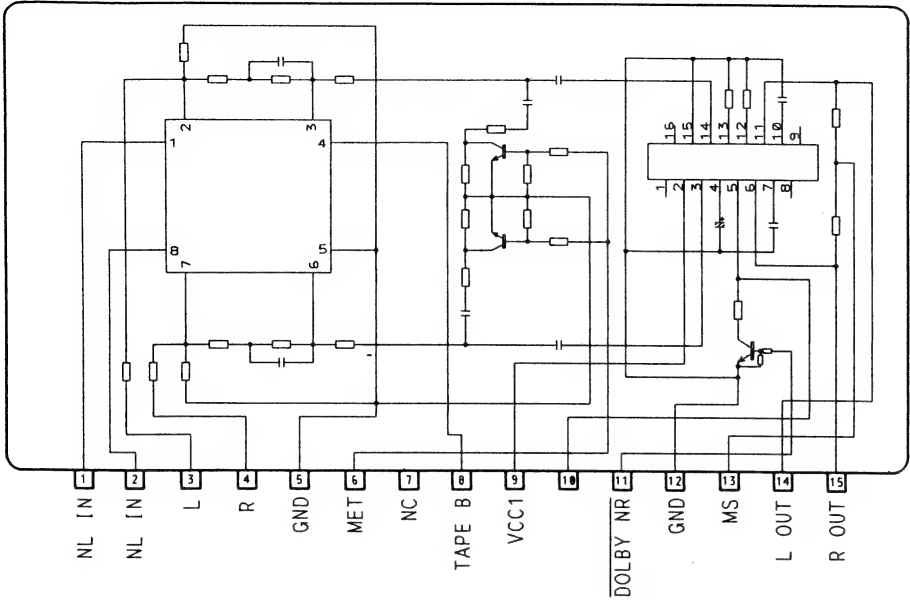
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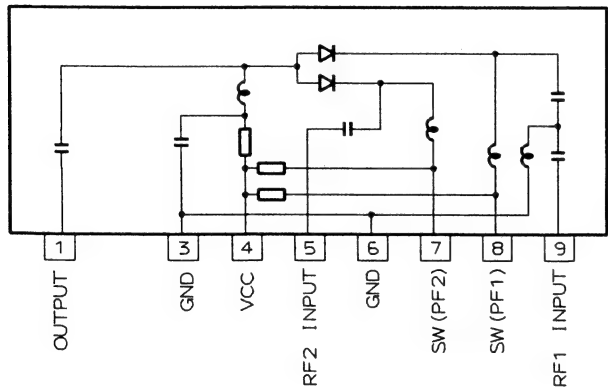
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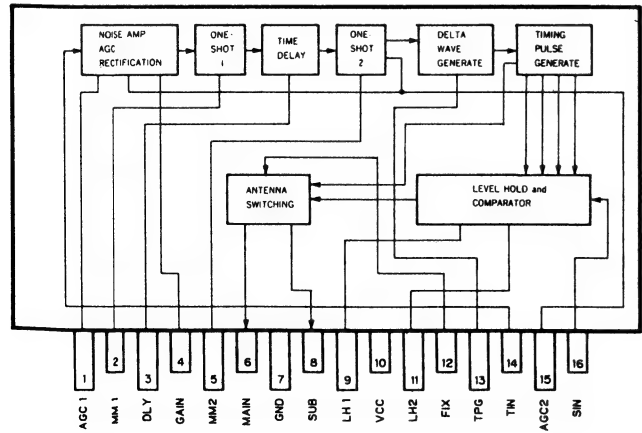
KHA911

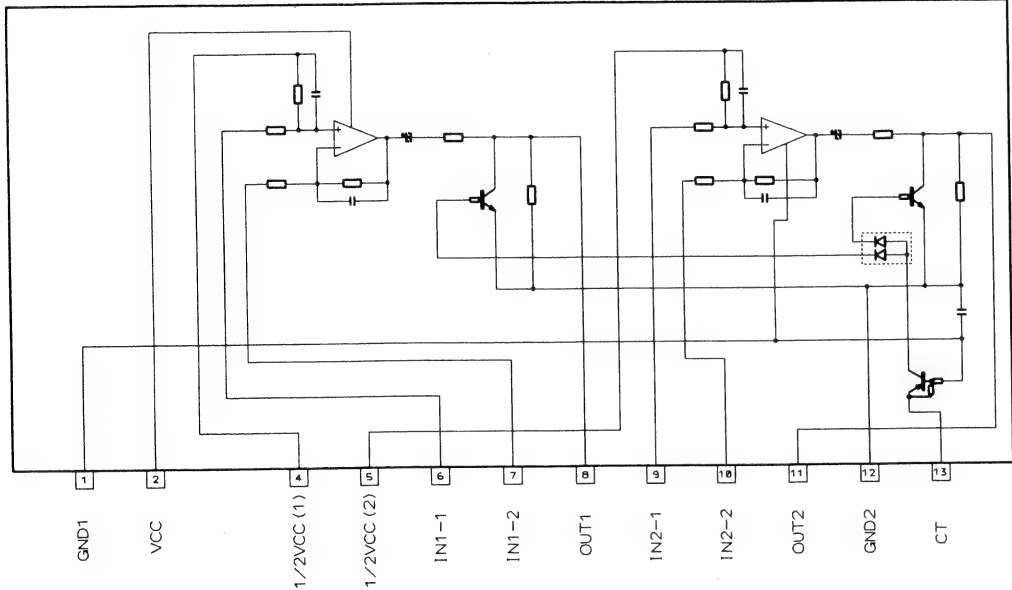
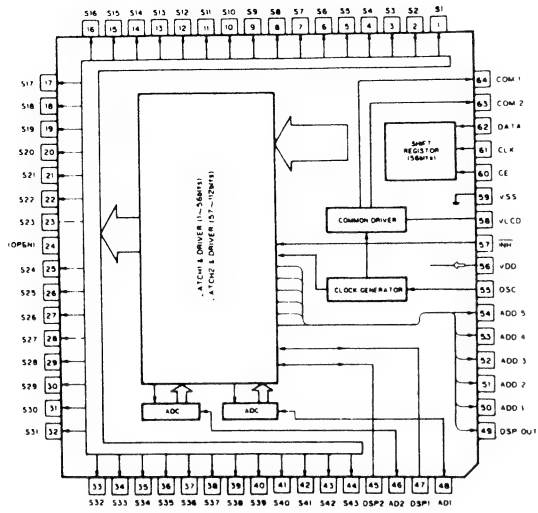


KHA197

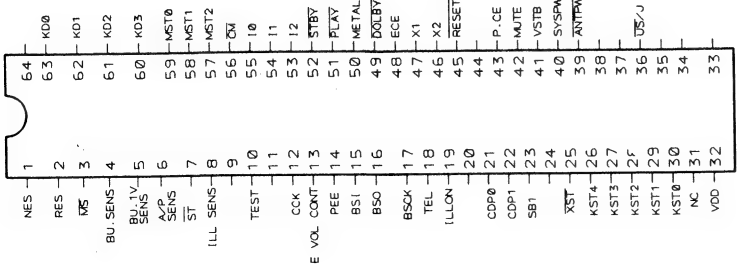


PA5011





*PD4332C



IC's marked by * are MOS type.
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

● Pin Functions (PD4332C)

| Pin | Pin name | I/O | Output Format | Function |
|--------|----------|--------------|---------------|------------------------------|
| 1 | NES | input | | Normal end detect |
| 2 | RES | input | | Reverse end detect |
| 3 | MS | | | Blank detect |
| 4 | BSENS | | | Back up detect |
| 5 | BU1VS | | | Back up 1V |
| 6 | APSENS | | | ACC power detect |
| 7 | ST | input | | Stereo |
| 8 | ILMIN | input | | Illumination input |
| 9 | EDI | | | EEPROM data input |
| 10 | TESTIN | input | | Test mode program entry |
| 11 | CDT | output | | Common data 1 |
| 12 | CCK | output | | Common clock |
| 13 | VDEN | output | | Volume data enable |
| 14 | PEE | | | Beep |
| 15 | BSI | input | | Bus serial input |
| 16 | BSO | output | | Bus serial output |
| 17 | BSCK | | | Bus serial clock |
| 18 | TEL | input | | Telephone mute |
| 19 | NC | | | |
| 20 | ANTI | output | N | Anti-LED |
| 21 | CDPW0 | output | N | CD power supply control |
| 22 | CDPW1 | output | N | CD power supply control |
| 23 | SBO | output | N | Power supply control |
| 24 | SB1 | output | N | Power supply control |
| 25 | XST | output | N | Extension I/O LOAD |
| 26-30 | KST4-0 | output | N | Key strobe |
| 31 | NC | | | |
| 32 | VDD | | | |
| 33 | BRXEN | input/output | | Bus reception enable |
| 34 | BRST | output | C | Bus reset |
| 35 | SD | input/output | C | SD existence |
| 36 | MODEJ | input | | Mode select |
| 37 | LINH | output | C | LCD driver inhibit |
| 38 | LCE | output | C | LCD driver chip enable |
| 39 | ANTPW | output | C | Antenna control current |
| 40 | SYSPW | output | C | System power supply |
| 41 | VST | output | C | Electronic volume strobe |
| 42 | MUTE | output | C | Mute output |
| 43 | PCE | output | C | PLL IC chip enable |
| 44 | NC | | | |
| 45 | RESET | | | |
| 46, 47 | X2, X1 | | | |
| 48 | ECE | output | C | EEPROM chip enable |
| 49 | DOLBY NR | output | C | Dolby NR ON=L |
| 50 | METAL | output | C | 70μS=H |
| 51 | PLAY | output | C | Play |
| 52 | STBY | output | C | PA3022 stand-by |
| 53-55 | I2-I0 | output | C | PA3022 data |
| 56 | CM | output | C | Capstan motor |
| 57-59 | MST2-0 | output | C | Mechanism switch strobe |
| 60-63 | KD3-0 | input | | Key , mechanism switch input |
| 64 | vss | | | |

| Output Format | Meaning |
|---------------|----------------------|
| C | C-MOS |
| N | N channel open drain |

● Pin Functions (PD4332C)

| Pin | Pin name | I/O | Output Format | Function |
|--------|----------|--------------|---------------|------------------------------|
| 1 | NES | input | | Normal end detect |
| 2 | RES | input | | Reverse end detect |
| 3 | MS | | | Blank detect |
| 4 | BSENS | | | Back up detect |
| 5 | BUIVS | | | Back up 1V |
| 6 | APSENS | | | ACC power detect |
| 7 | ST | input | | Stereo |
| 8 | ILMIN | input | | Illumination input |
| 9 | EDI | | | EEPROM data input |
| 10 | TESTIN | input | | Test mode program entry |
| 11 | CDT | output | | Common data 1 |
| 12 | CCK | output | | Common clock |
| 13 | VDEN | output | | Volume data enable |
| 14 | PEE | | | Beep |
| 15 | BSI | input | | Bus serial input |
| 16 | BSO | output | | Bus serial output |
| 17 | BSCK | | | Bus serial clock |
| 18 | TEL | input | | Telephone mute |
| 19 | NC | | | |
| 20 | ANTI | output | N | Anti-LED |
| 21 | CDPWO | output | N | CD power supply control |
| 22 | CDPW1 | output | N | CD power supply control |
| 23 | SBO | output | N | Power supply control |
| 24 | SBI | output | N | Power supply control |
| 25 | XST | output | N | Extension I/O LOAD |
| 26-30 | KST4-0 | output | N | Key strobe |
| 31 | NC | | | |
| 32 | VDD | | | |
| 33 | BRXEN | input/output | | Bus reception enable |
| 34 | BRST | output | C | Bus reset |
| 35 | SD | input/output | C | SD existence |
| 36 | MODEJ | input | | Mode select |
| 37 | LINH | output | C | LCD driver inhibit |
| 38 | LCE | output | C | LCD driver chip enable |
| 39 | ANTPW | output | C | Antenna control current |
| 40 | SYSPW | output | C | System power supply |
| 41 | VST | output | C | Electronic volume strobe |
| 42 | MUTE | output | C | Mute output |
| 43 | PCE | output | C | PLL IC chip enable |
| 44 | NC | | | |
| 45 | RESET | | | |
| 46, 47 | X2, X1 | | | |
| 48 | ECE | output | C | EEPROM chip enable |
| 49 | DOLBY NR | output | C | Dolby NR ON=L |
| 50 | METAL | output | C | 70μS=H |
| 51 | PLAY | output | C | Play |
| 52 | STBY | output | C | PA3022 stand-by |
| 53-55 | I2-10 | output | C | PA3022 data |
| 56 | CM | output | C | Capstan motor |
| 57-59 | MST2-0 | output | C | Mechanism switch strobe |
| 60-63 | KD3-0 | input | | Key , mechanism switch input |
| 64 | VSS | | | |

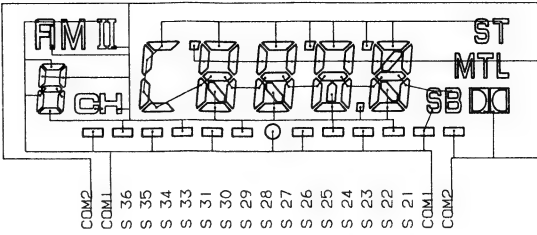
| Output Format | Meaning |
|---------------|----------------------|
| C | C-MOS |
| N | N channel open drain |

use they are very
tatic induction.

● LCD (CAW1160)

COMMON

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21



SEGMENT

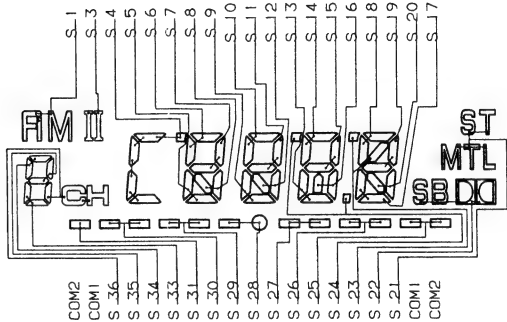
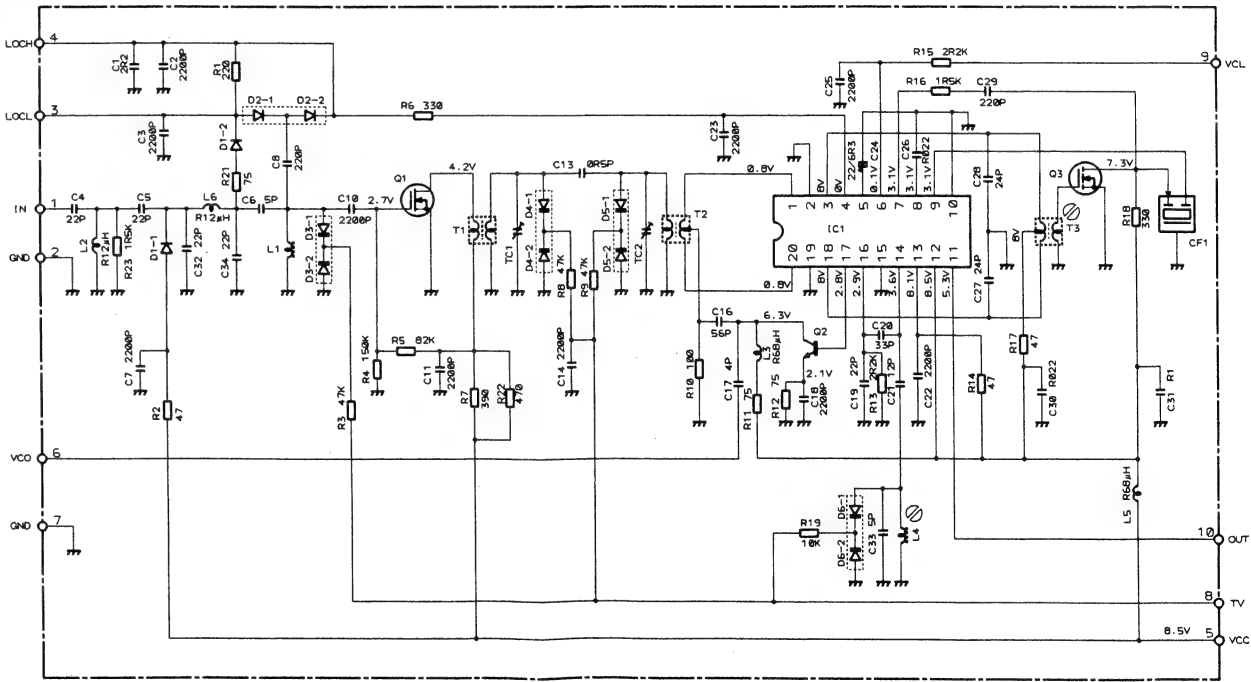


Fig. 8

● FM Front End (CWB1059)



NOTE:
□ Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
2.2-2R2
0.022-R022
—|— Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2-2R2
0.022-R022

Fig. 9

10. CONNECTION DIAGRAM

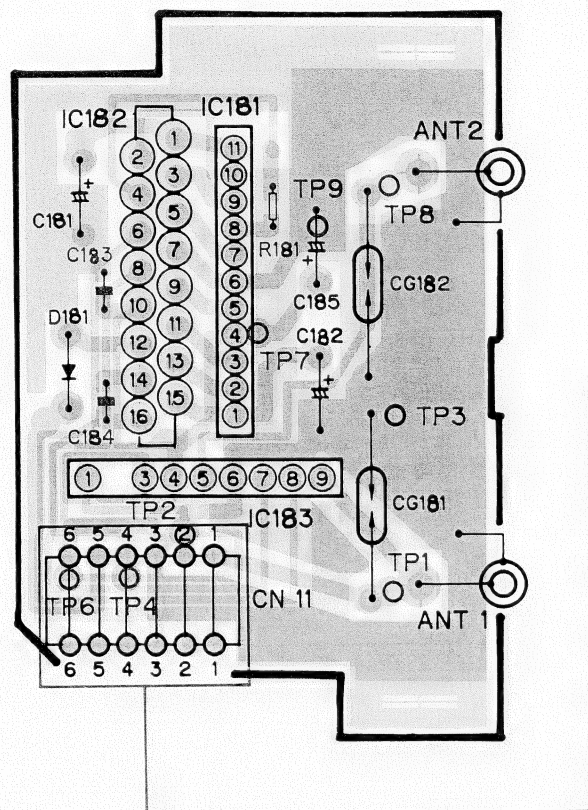
| IC 181 | | | | | | | | | | |
|--------|------|------|------|------|----|----|------|----|----|------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 2.2V | 0.2V | 2.3V | 8.5V | 2.3V | 0V | 0V | 3.2V | 0V | 0V | 0.8V |

ANTENNA UNIT

| IC 182 | | |
|--------|-------|-------|
| IC | IC183 | IC181 |

| IC 182 | | | | | | | |
|--------|------|------|------|------|------|------|------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 0.8V | 0V | 0V | 3.2V | 0V | 2.0V | 0V | 8.5V |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 2.3V | 8.5V | 3.2V | 4.3V | 0.2V | 3.3V | 2.2V | 1.2V |

| IC 183 | | | | | | | | |
|--------|----|----|------|----|----|------|------|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 0V | NC | 0V | 8.5V | 0V | 0V | 8.5V | 2.0V | 0V |



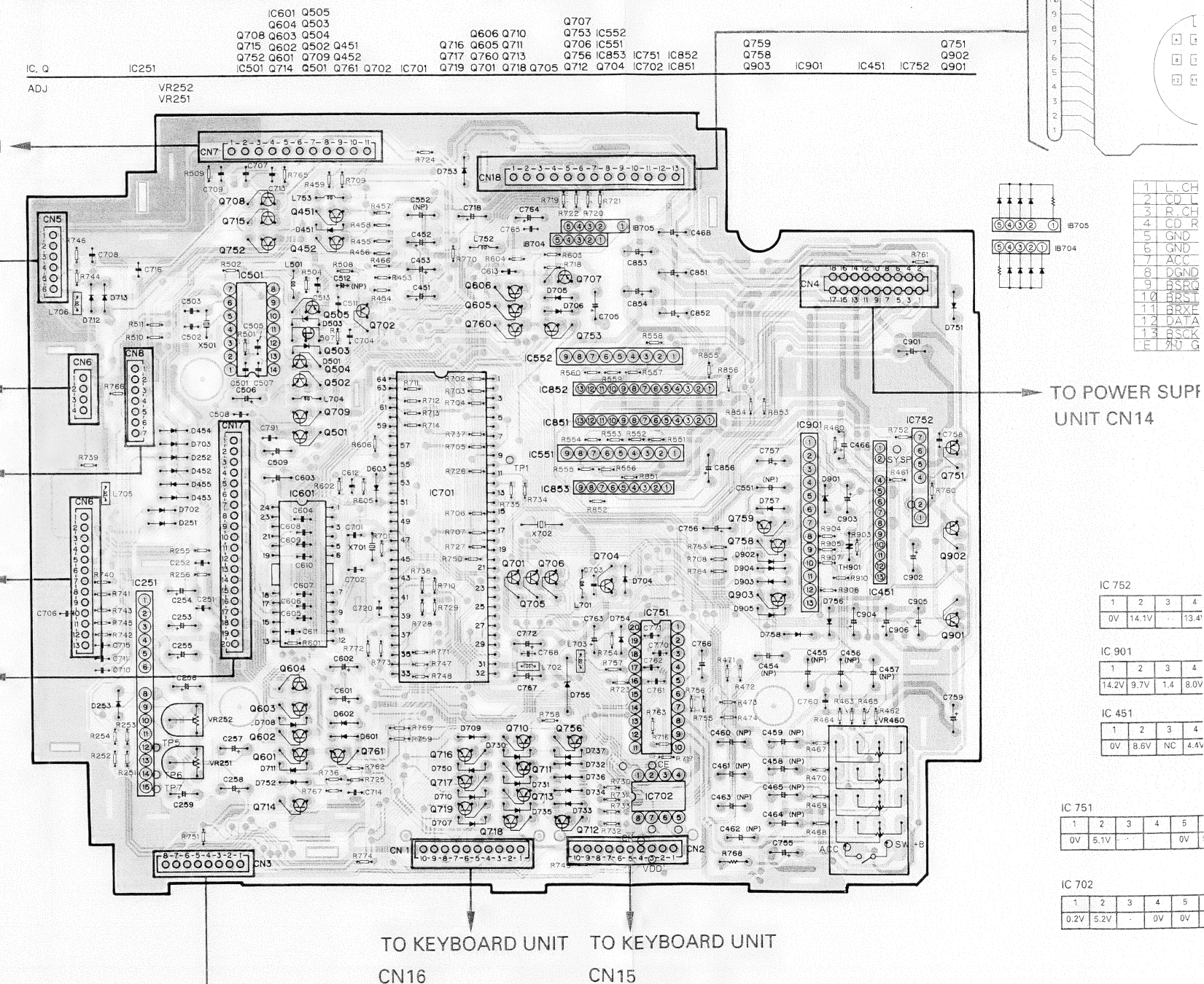
TO CASSETTE MECHANISM ASSY

TO WB UNIT CN9

TO FM UNIT

TO AM UNIT CN201

TUNER AMP P.C. BOARD



| IC 501 | | | | | | |
|--------|----|----|------|------|------|------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2.5V | 0V | 0V | 0V | 2.1V | 1.2V | 2.1V |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 5.1V | - | - | 2.3V | 5.1V | 4.5V | 0V |

| IC 551, 552 | | | | | | | | |
|-------------|------|------|------|----|------|------|------|------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 8.6V | 4.4V | 4.4V | 4.3V | 0V | 4.3V | 4.4V | 4.4V | 8.6V |

| IC 851, 852 | | | | | | | | | | | | |
|-------------|------|---|------|------|------|------|----|------|------|----|------|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 0V | 8.6V | - | 4.4V | 4.3V | 4.4V | 4.4V | 0V | 4.4V | 4.4V | 0V | 4.4V | 0V |

| IC 853 | | | | | | | | |
|--------|------|---|------|------|------|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 0V | 8.6V | - | 4.4V | 4.4V | 4.4V | 0V | 0V | 0V |

| | | |
|-----|------|----|
| 1 | L | CH |
| 2 | CD | L |
| 3 | R | CH |
| 4 | CD | R |
| 5 | GND | |
| 6 | ACC | |
| 7 | ACC | |
| 8 | DATA | |
| 9 | DATA | |
| 10 | DATA | |
| 11 | DATA | |
| 12 | DATA | |
| 13 | DATA | |
| 14 | DATA | |
| 15 | DATA | |
| 16 | DATA | |
| 17 | DATA | |
| 18 | DATA | |
| 19 | DATA | |
| 20 | DATA | |
| 21 | DATA | |
| 22 | DATA | |
| 23 | DATA | |
| 24 | DATA | |
| 25 | DATA | |
| 26 | DATA | |
| 27 | DATA | |
| 28 | DATA | |
| 29 | DATA | |
| 30 | DATA | |
| 31 | DATA | |
| 32 | DATA | |
| 33 | DATA | |
| 34 | DATA | |
| 35 | DATA | |
| 36 | DATA | |
| 37 | DATA | |
| 38 | DATA | |
| 39 | DATA | |
| 40 | DATA | |
| 41 | DATA | |
| 42 | DATA | |
| 43 | DATA | |
| 44 | DATA | |
| 45 | DATA | |
| 46 | DATA | |
| 47 | DATA | |
| 48 | DATA | |
| 49 | DATA | |
| 50 | DATA | |
| 51 | DATA | |
| 52 | DATA | |
| 53 | DATA | |
| 54 | DATA | |
| 55 | DATA | |
| 56 | DATA | |
| 57 | DATA | |
| 58 | DATA | |
| 59 | DATA | |
| 60 | DATA | |
| 61 | DATA | |
| 62 | DATA | |
| 63 | DATA | |
| 64 | DATA | |
| 65 | DATA | |
| 66 | DATA | |
| 67 | DATA | |
| 68 | DATA | |
| 69 | DATA | |
| 70 | DATA | |
| 71 | DATA | |
| 72 | DATA | |
| 73 | DATA | |
| 74 | DATA | |
| 75 | DATA | |
| 76 | DATA | |
| 77 | DATA | |
| 78 | DATA | |
| 79 | DATA | |
| 80 | DATA | |
| 81 | DATA | |
| 82 | DATA | |
| 83 | DATA | |
| 84 | DATA | |
| 85 | DATA | |
| 86 | DATA | |
| 87 | DATA | |
| 88 | DATA | |
| 89 | DATA | |
| 90 | DATA | |
| 91 | DATA | |
| 92 | DATA | |
| 93 | DATA | |
| 94 | DATA | |
| 95 | DATA | |
| 96 | DATA | |
| 97 | DATA | |
| 98 | DATA | |
| 99 | DATA | |
| 100 | DATA | |

| IC 752 | | | |
|--------|-------|---|-------|
| 1 | 2 | 3 | 4 |
| 0V | 14.1V | - | 13.4V |

| IC 901 | | | |
|--------|------|-----|------|
| 1 | 2 | 3 | 4 |
| 14.2V | 9.7V | 1.4 | 8.0V |

| IC 451 | | | |
|--------|------|----|------|
| 1 | 2 | 3 | 4 |
| 0V | 8.6V | NC | 4.4V |

| IC 751 | | | | |
|--------|------|---|---|----|
| 1 | 2 | 3 | 4 | 5 |
| 0V | 5.1V | - | - | 0V |

| IC 702 | | | | |
|--------|------|---|----|----|
| 1 | 2 | 3 | 4 | 5 |
| 0.2V | 5.2V | - | 0V | 0V |

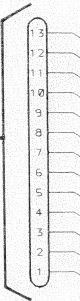
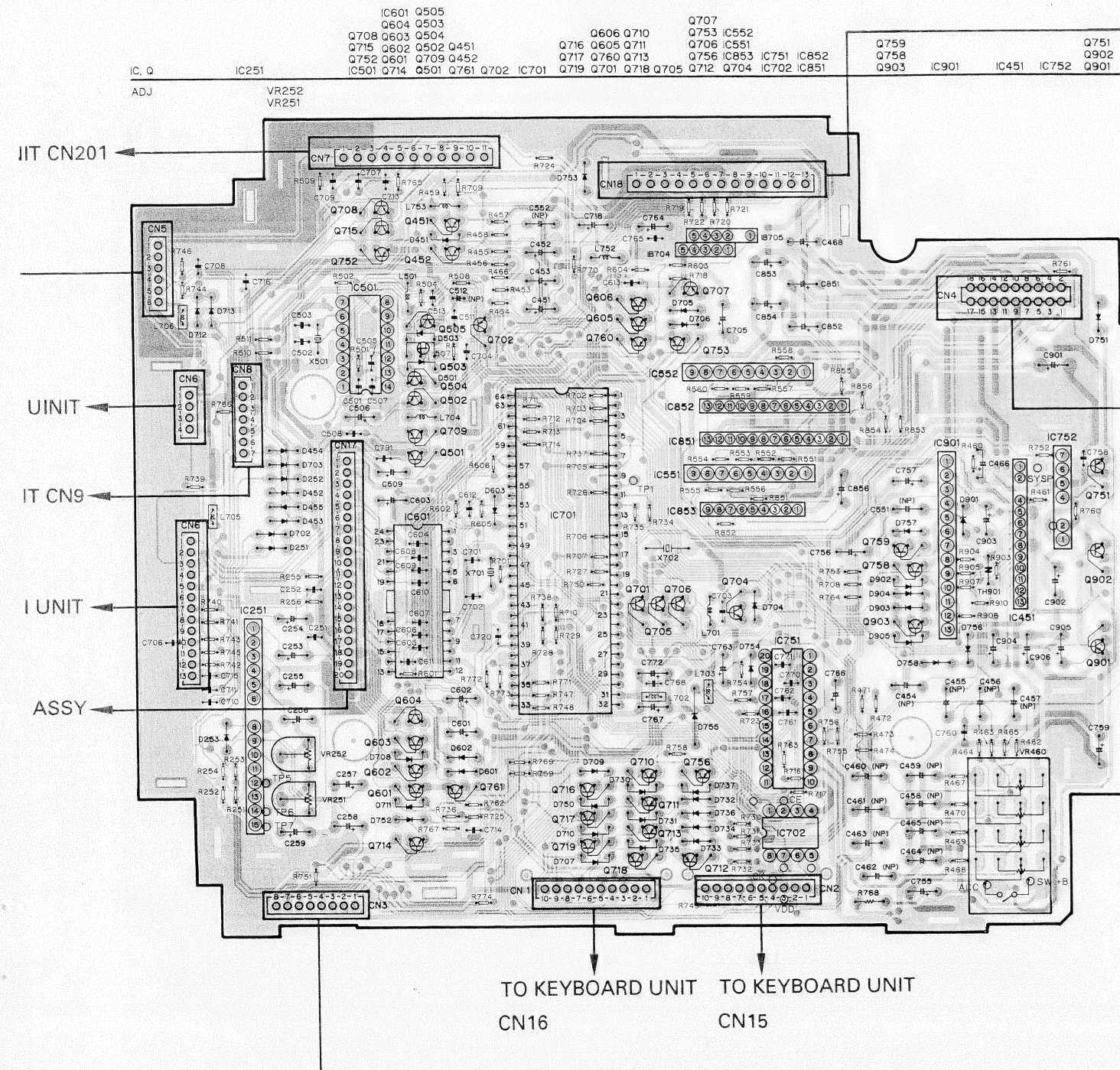
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-------|----|----|------|------|------|------|
| -2.5V | 0V | 0V | 0V | 2.1V | 1.2V | 2.1V |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 5.1V | - | - | 2.3V | 5.1V | 4.5V | 0V |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|------|------|------|------|----|------|------|------|------|
| 8.6V | 4.4V | 4.4V | 4.3V | 0V | 4.3V | 4.4V | 4.4V | 8.6V |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|----|------|---|------|------|------|------|----|------|------|----|------|----|
| 0V | 8.6V | - | 4.4V | 4.3V | 4.4V | 4.4V | 0V | 4.4V | 4.4V | 0V | 4.4V | 0V |

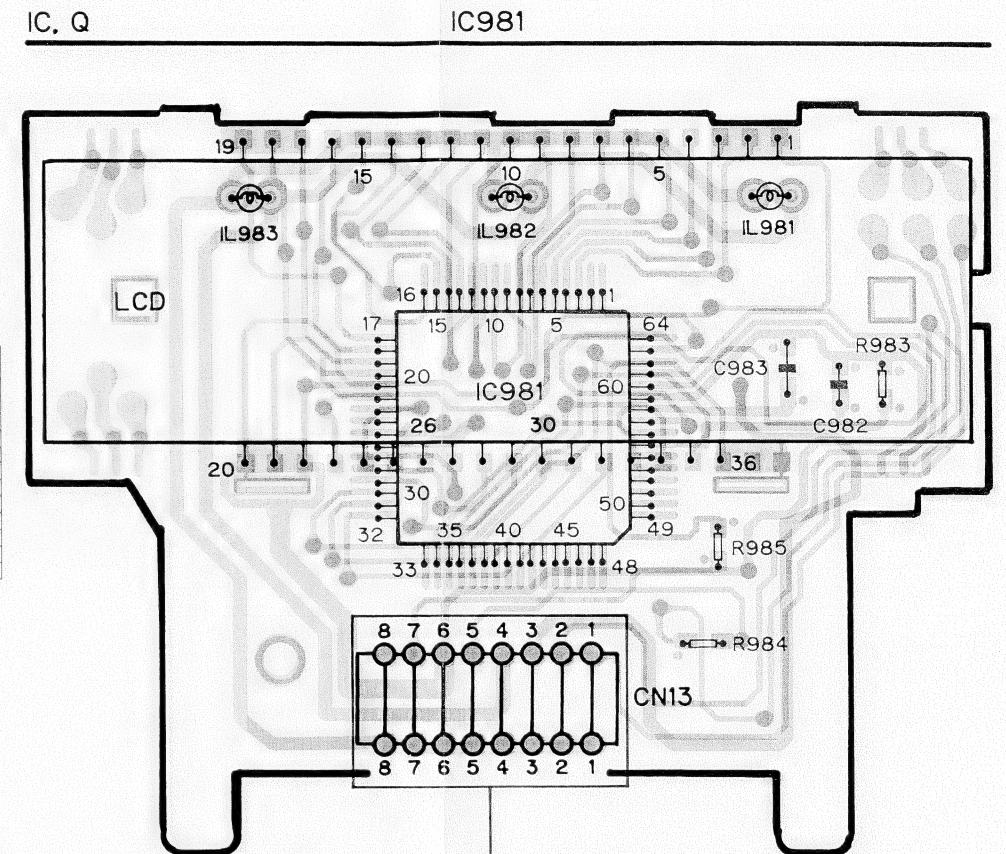
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|----|------|---|------|------|------|----|----|----|
| 0V | 8.6V | - | 4.4V | 4.4V | 4.4V | 0V | 0V | 0V |

TUNER AMP P.C. BOARD



| | | | |
|----|-------|------|-----|
| 1 | L.CH | ISO | GND |
| 2 | CD | L.CH | |
| 3 | R.CH | ISO | GND |
| 4 | CD | R.CH | |
| 5 | GND | | |
| 6 | GND | | |
| 7 | ACC | | |
| 8 | DGND | | |
| 9 | BSRQ | | |
| 10 | BRST | | |
| 11 | BRXEN | | |
| 12 | DATA | | |
| 13 | BSCK | | |
| E | AND | GND | |

TO POWER SUPPLY UNIT CN14



LCD UNIT

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|-------|---|-------|------|------|------|
| 0V | 14.1V | - | 13.4V | 8.6V | 5.2V | 2.0V |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|-------|------|-----|------|----|----|----|----|----|------|-------|------|-------|
| 14.2V | 9.7V | 1.4 | 8.0V | 0V | 0V | 0V | 0V | 0V | 8.1V | 13.5V | 8.0V | 13.5V |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|----|------|----|------|------|------|------|------|------|------|----|------|------|
| 0V | 8.6V | NC | 4.4V | 4.4V | 4.4V | 4.4V | 4.4V | 4.4V | 4.4V | 0V | 8.6V | 8.6V |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 17 | 18 | 19 | 20 |
|----|------|---|----|------|-------|-------|-------|------|------|----|------|------|----|
| 0V | 5.1V | - | 0V | 9.1V | 13.9V | 14.3V | 14.3V | 8.6V | 5.1V | - | 5.8V | 5.2V | |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|------|------|---|----|----|----|----|------|
| 0.2V | 5.2V | - | 0V | 0V | 0V | 0V | 5.2V |

TO KEYBOARD UNIT CN16 TO KEYBOARD UNIT CN15

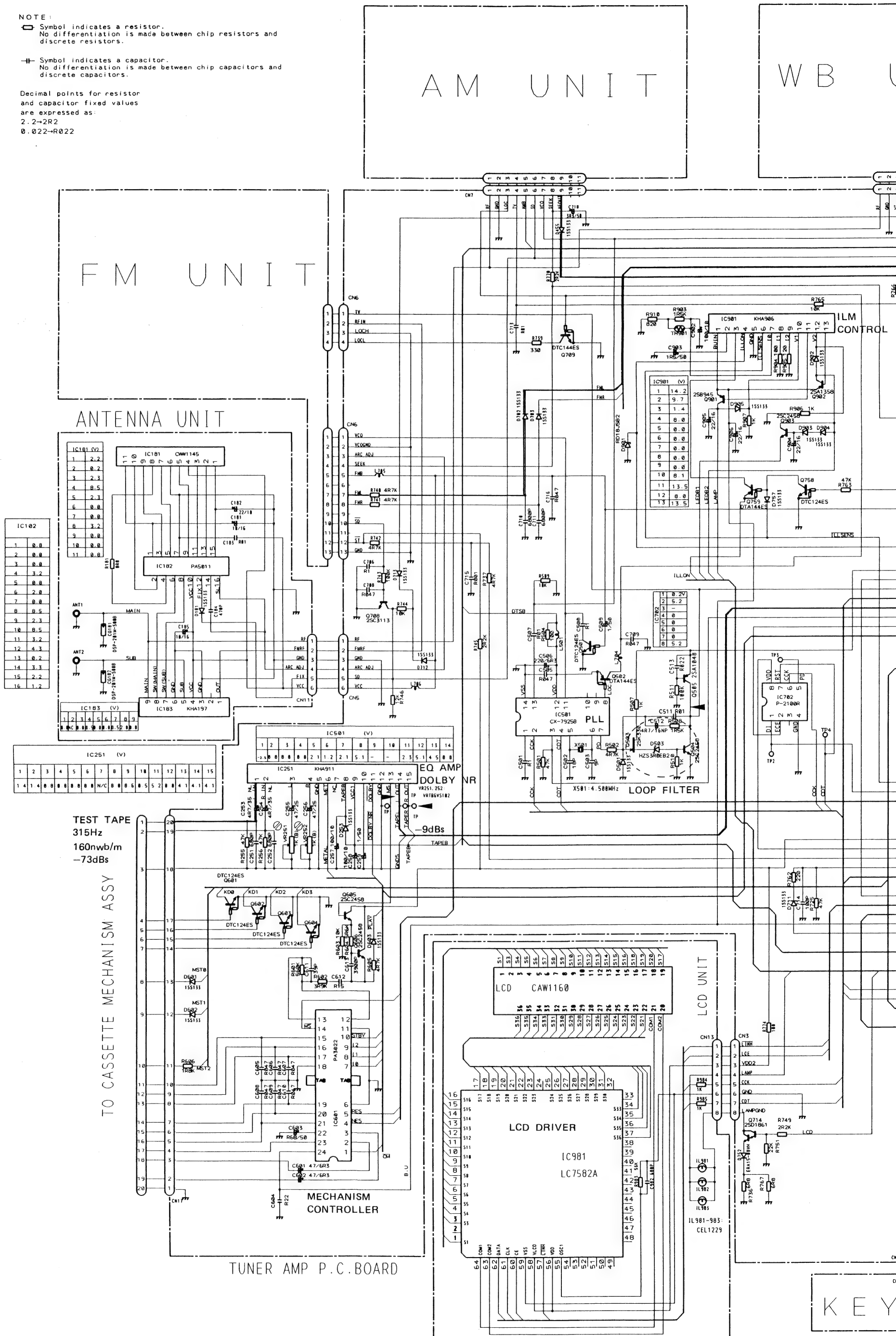
Fig. 10

11. SCHEMATIC CIRCUIT DIAGRAM

NOTE:

- Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
- ⊞ Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022





33

KEY BOARD UNIT

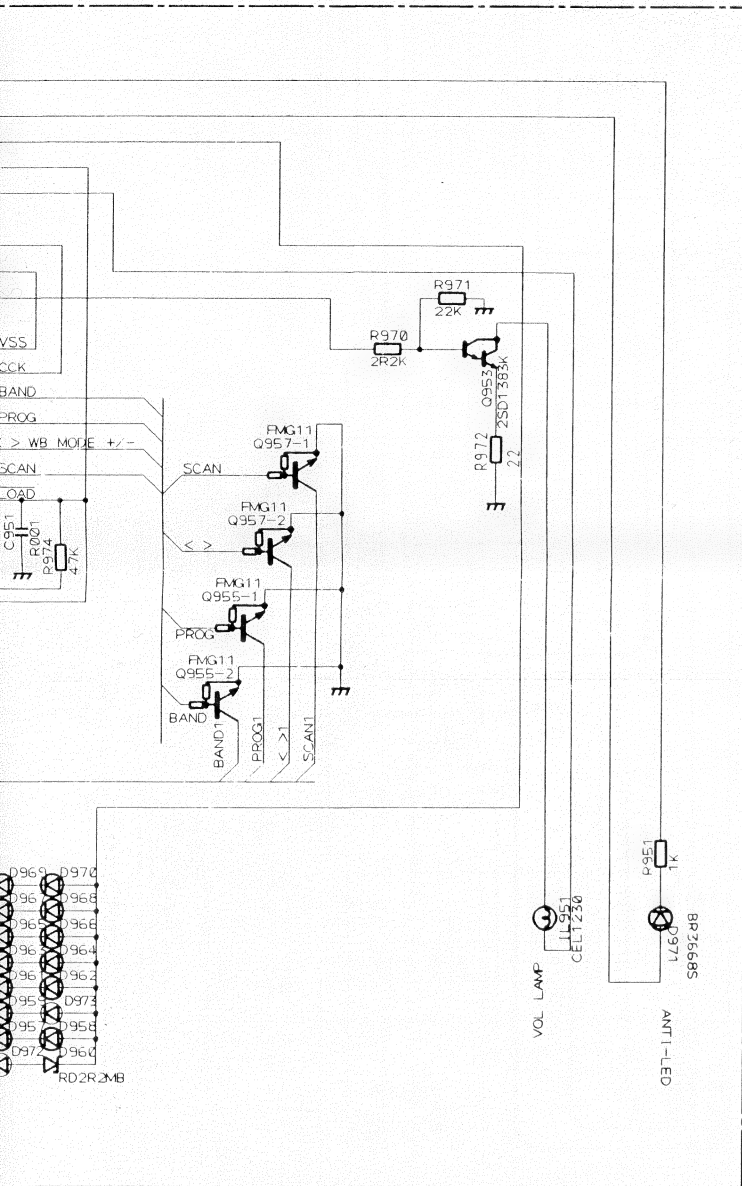


Fig. 12

ER AMP P. C. BOARD CN4

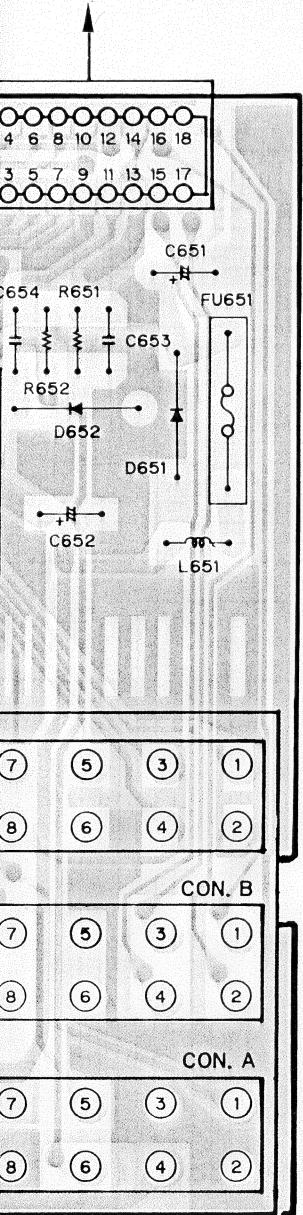
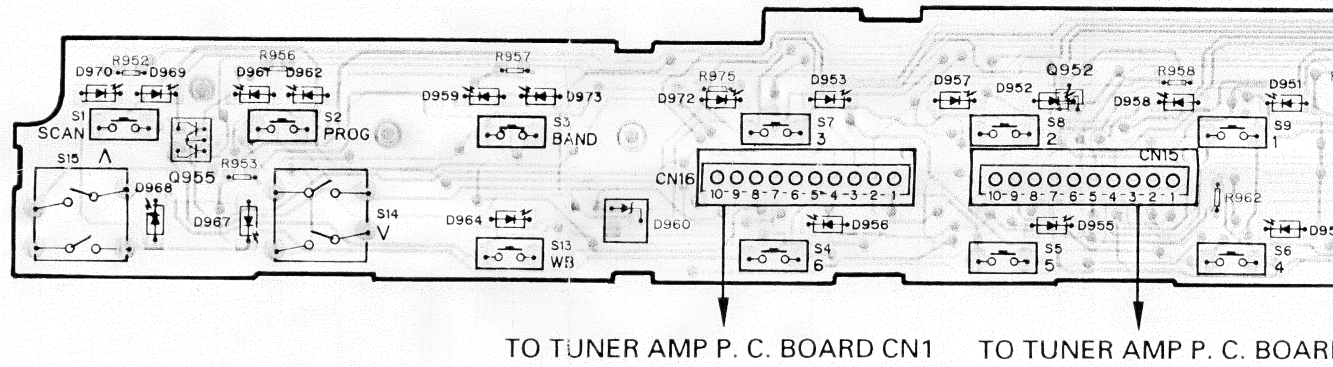


Fig. 15

IC. Q

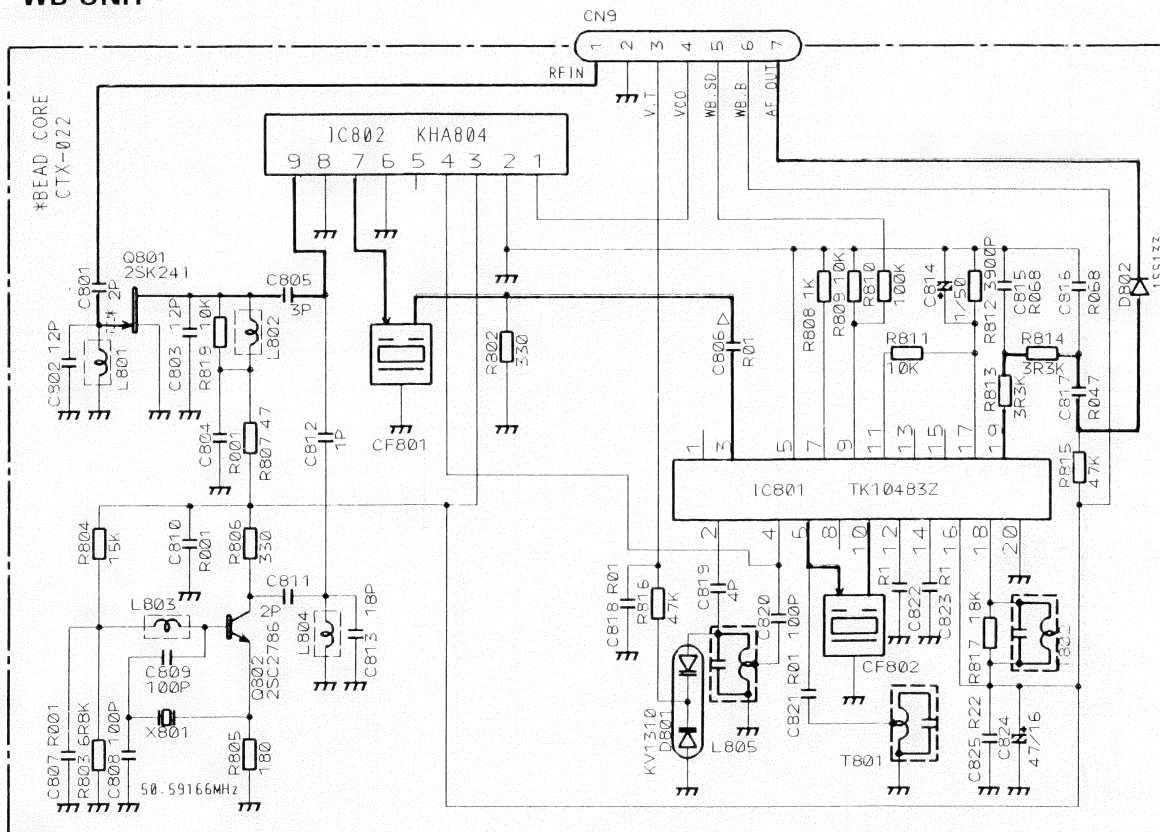
Q955

Q952



TO TUNER AMP P. C. BOARD CN1 TO TUNER AMP P. C. BOARD

WB UNIT



| IC802 | |
|-------|------|
| 1 | 4.6V |
| 2 | 0 |
| 3 | 8.5 |
| 4 | 7.8 |
| 5 | - |
| 6 | 0 |
| 7 | 8.2 |
| 8 | 0 |
| 9 | 1.7 |

| IC801 | |
|-------|------|
| 1 | 0 |
| 2 | 8.5V |
| 3 | 1.8 |
| 4 | 7.8 |
| 5 | 0 |
| 6 | 8.4 |
| 7 | 0.6 |
| 8 | 0 |
| 9 | 8.3 |
| 10 | 7.6 |
| 11 | 0.2 |
| 12 | 7.6 |
| 13 | 8.5 |
| 14 | 7.6 |
| 15 | 0 |
| 16 | 8.5 |
| 17 | 0.2 |
| 18 | 8.5 |
| 19 | 3.9 |
| 20 | 0 |

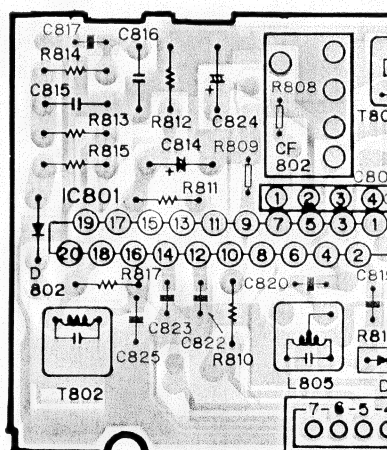
Fig. 16

IC. Q

IC801

ADJ T802

L805



TO TUNER AMP

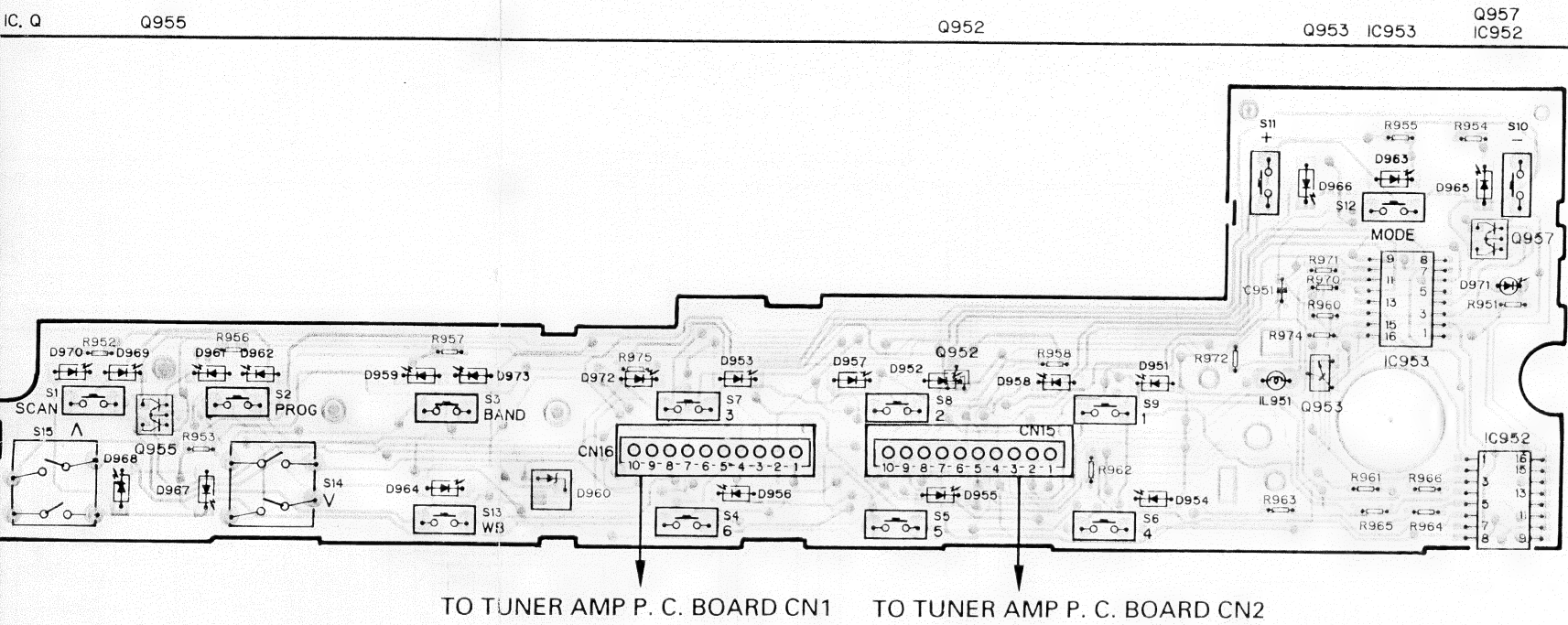


Fig. 13

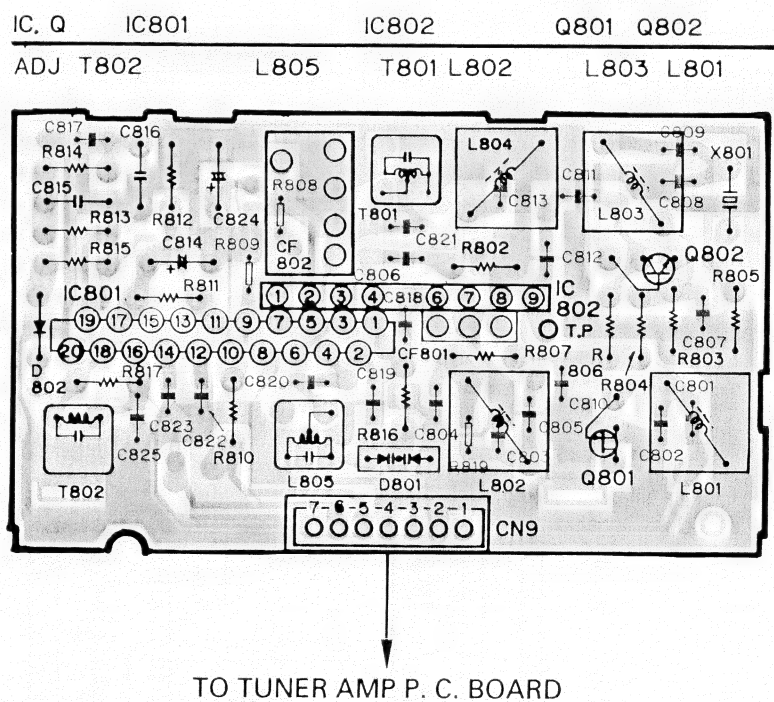
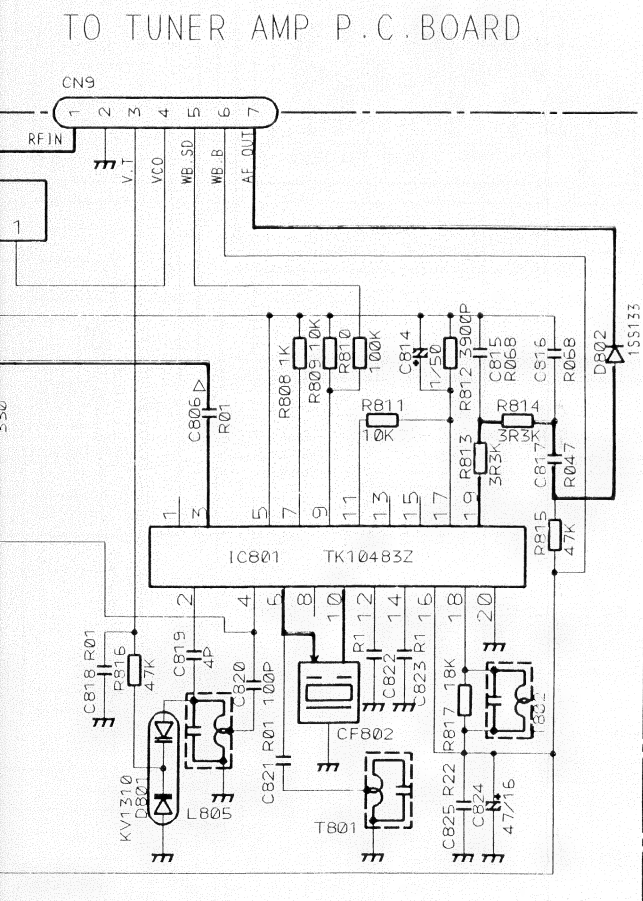


Fig. 17

| IC801 | | | |
|-------|------|----|-----|
| 1 | 0 | 11 | 0.2 |
| 2 | 8.5V | 12 | 7.6 |
| 3 | 1.8 | 13 | 8.5 |
| 4 | 7.8 | 14 | 7.6 |
| 5 | 0 | 15 | 0 |
| 6 | 8.4 | 16 | 8.5 |
| 7 | 0.6 | 17 | 0.2 |
| 8 | 0 | 18 | 8.5 |
| 9 | 8.3 | 19 | 3.9 |
| 10 | 7.6 | 20 | 0 |

Fig. 16

• FM UNIT

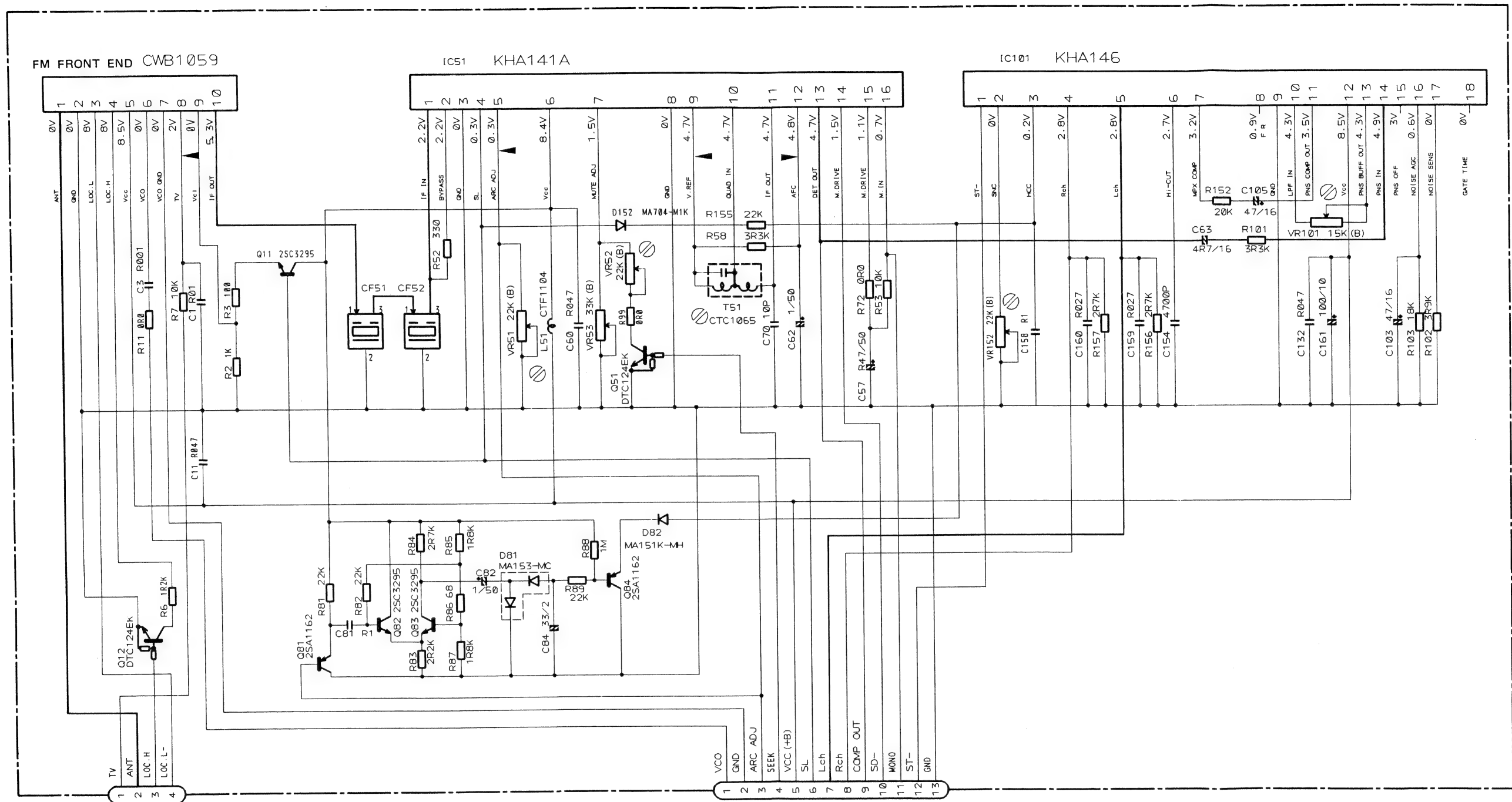


Fig. 18

IC, Q
ADJ

TO TUI

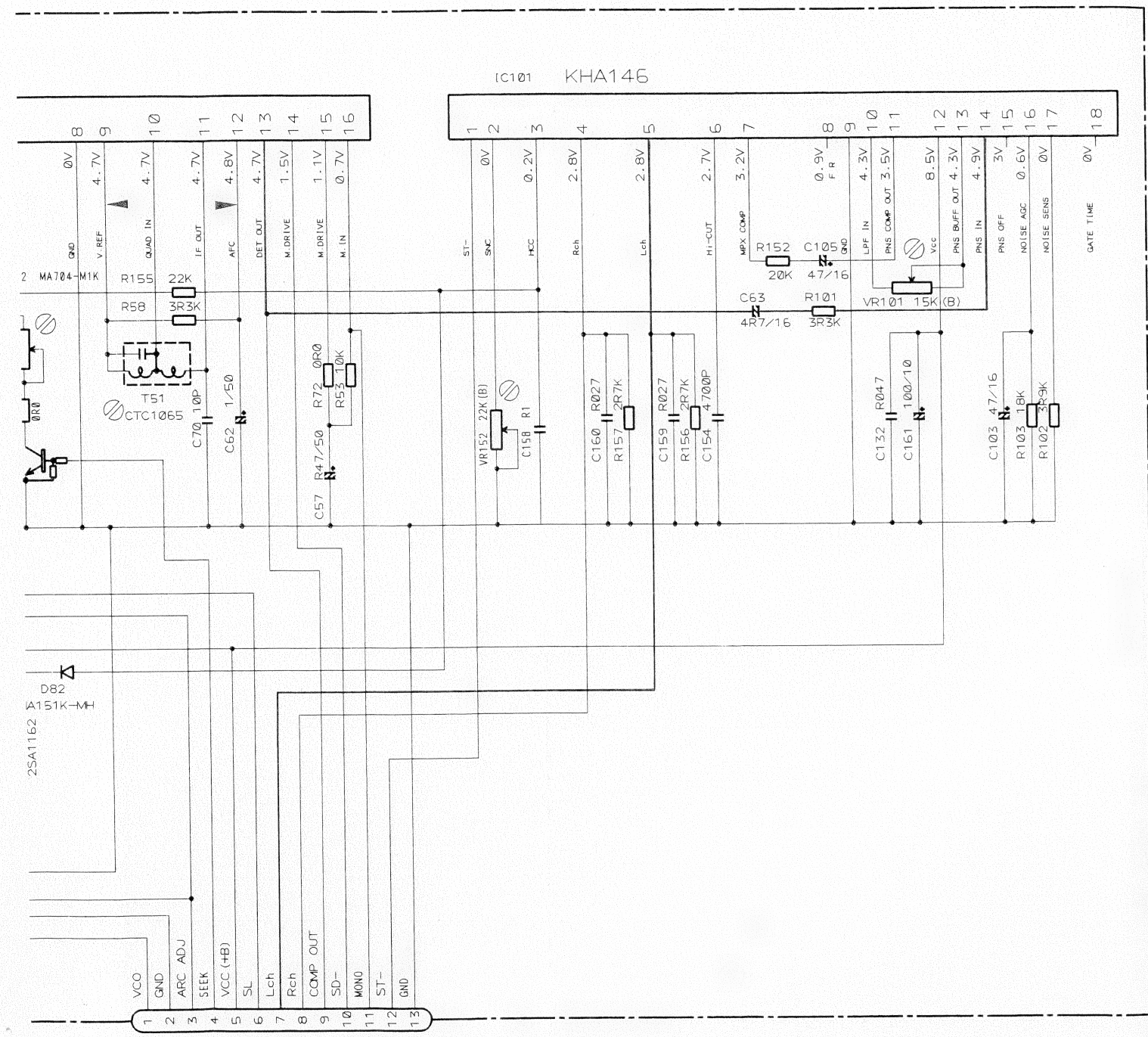


Fig. 18

IC 101

| | | | | | | | | |
|------|------|------|------|------|------|------|-----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | 0V | 0.2V | 2.8V | 2.8V | 2.7V | 3.2V | 0.9 | 0V |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 4.3V | 3.5V | 8.5V | 4.3V | 4.9V | 3.0V | 0.6V | 0v | 0V |

IC 51

| | | | | | | | |
|------|------|------|------|------|------|------|------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 2.2V | 2.2V | 0V | 0.3V | 0.3V | 8.4V | 1.5V | 0V |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 4.7V | 4.7V | 4.7V | 4.8V | 4.7V | 1.5V | 1.1V | 0.7V |

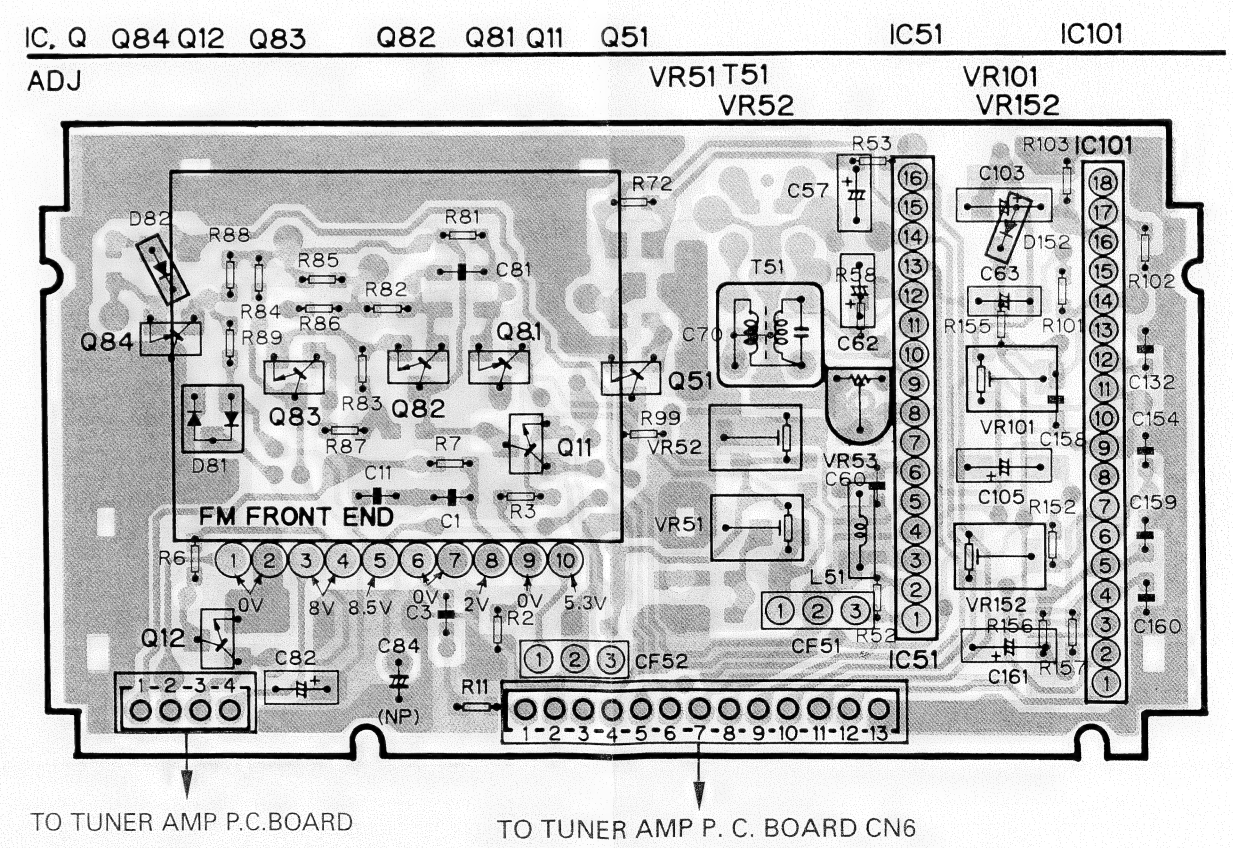


Fig. 19

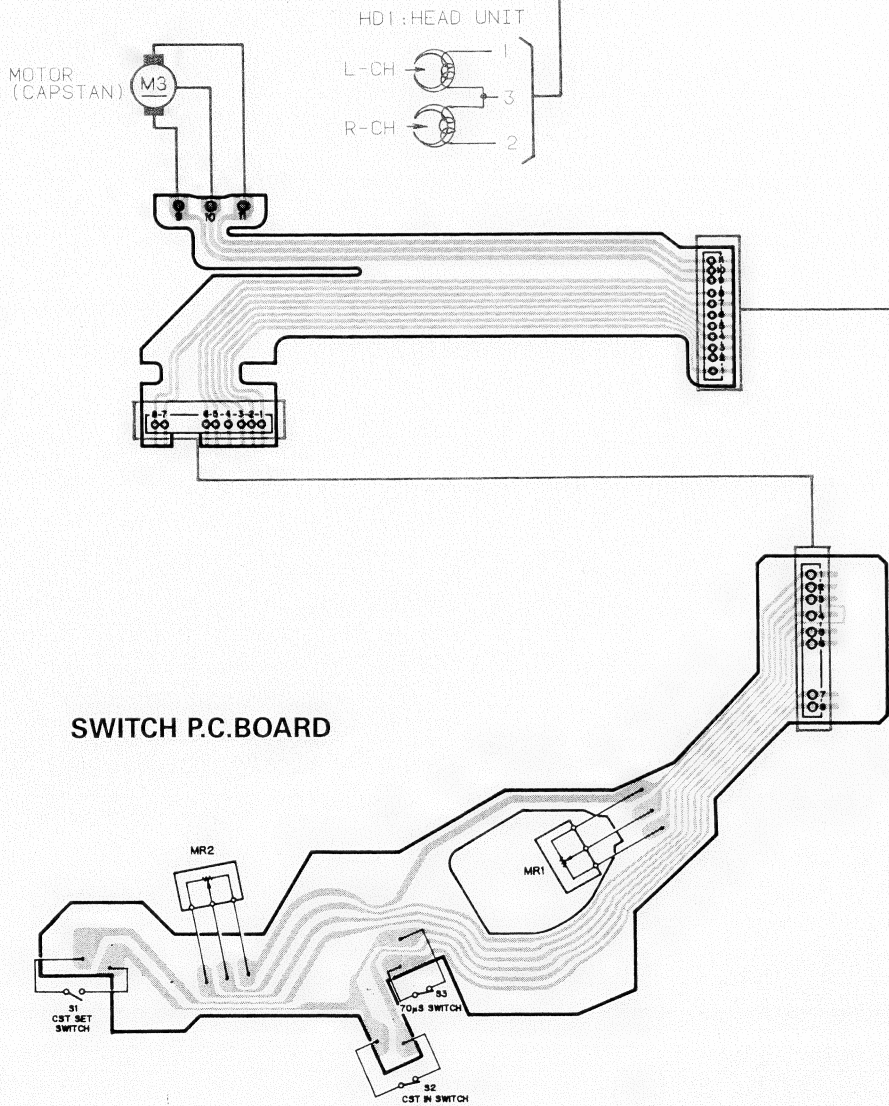
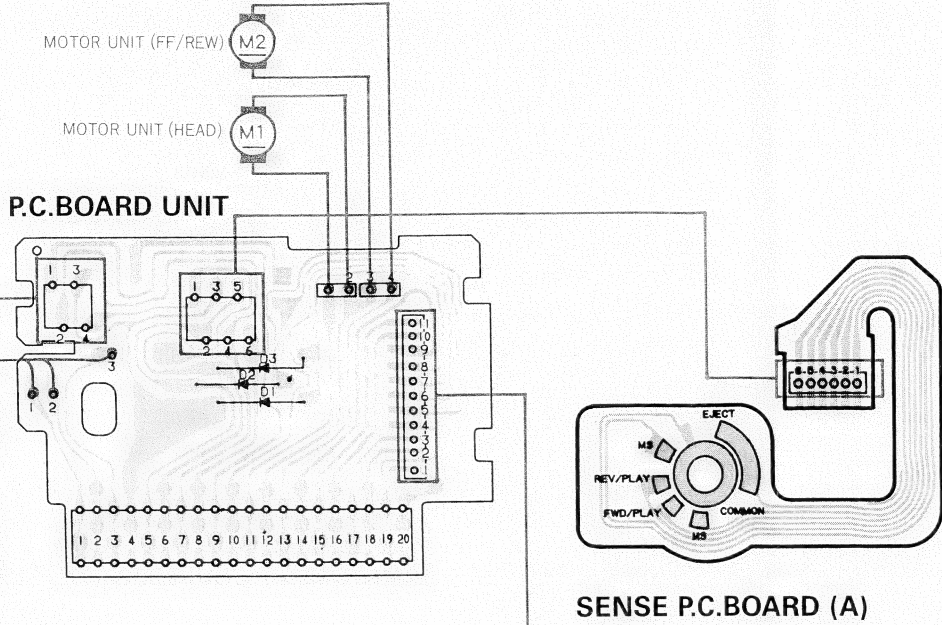
CASSETTE MECHANISM ASSY

A

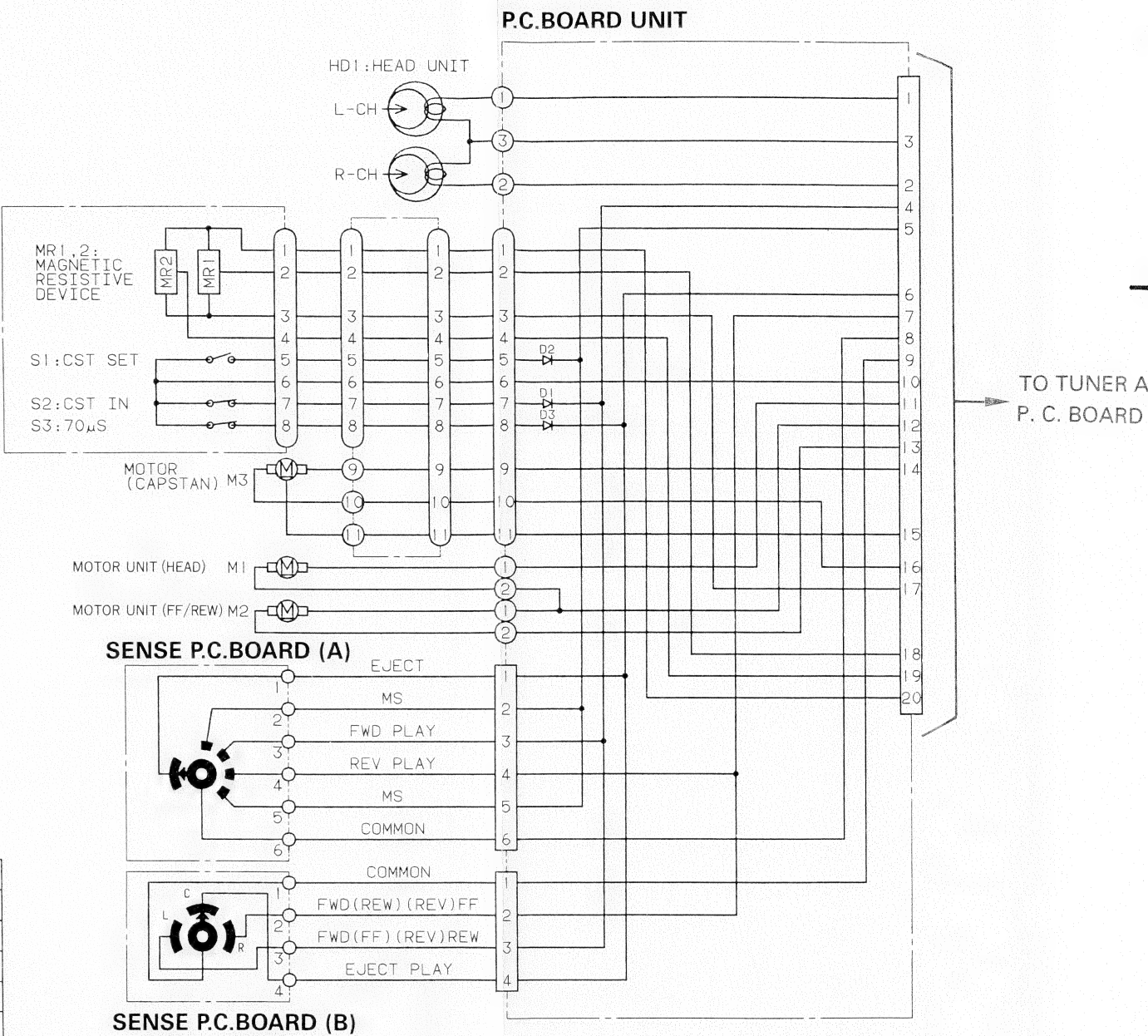
B

C

D

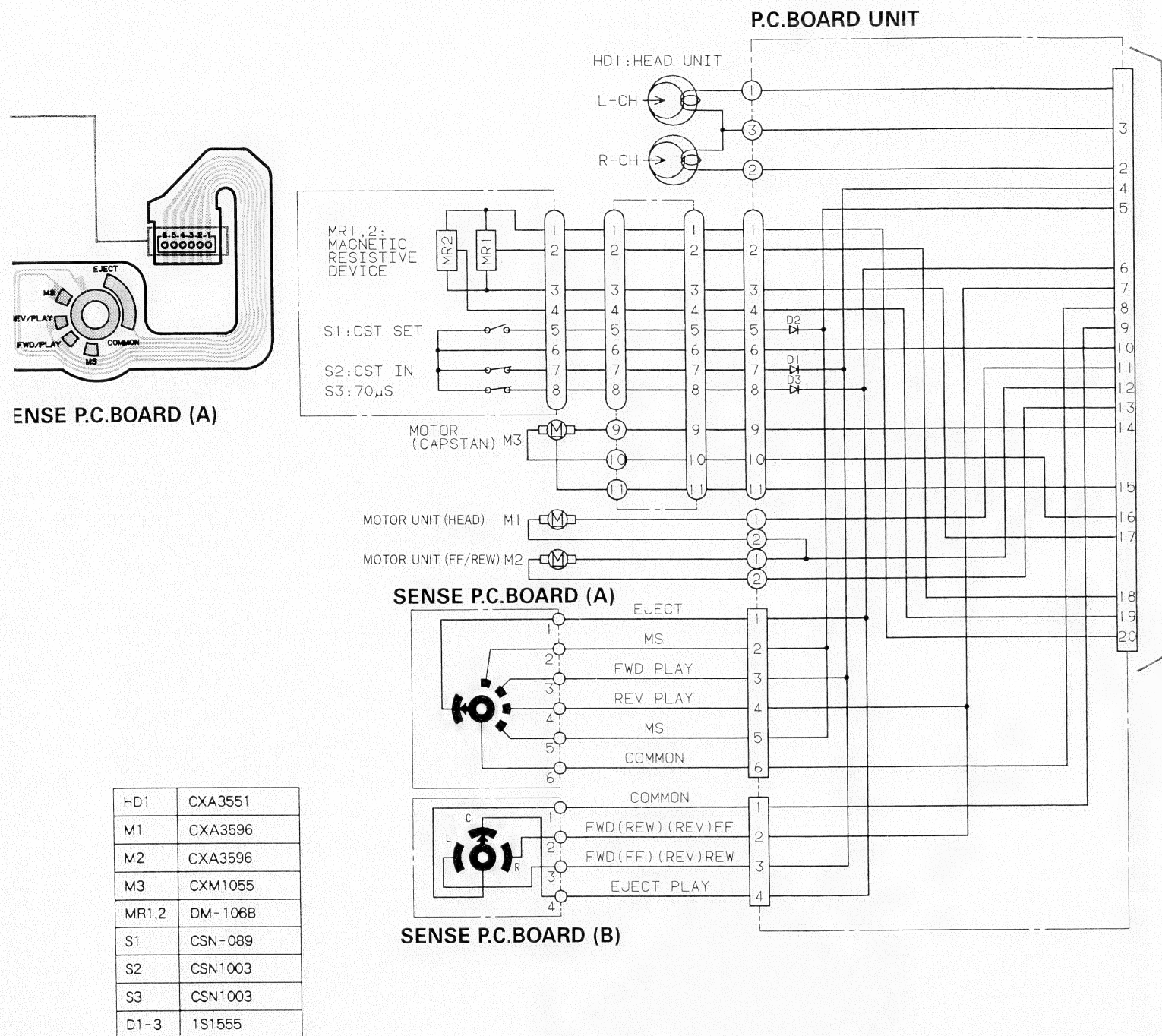


| | |
|-------|---------|
| HD1 | CXA3551 |
| M1 | CXA3596 |
| M2 | CXA3596 |
| M3 | CXM1055 |
| MR1,2 | DM-106B |
| S1 | CSN-089 |
| S2 | CSN1003 |
| S3 | CSN1003 |
| D1-3 | 1S1555 |



| |
|-------|
| IC 20 |
| 1 |
| 0.6V |
| 13 |
| 8.4V |

Fig. 20



• AM UNIT

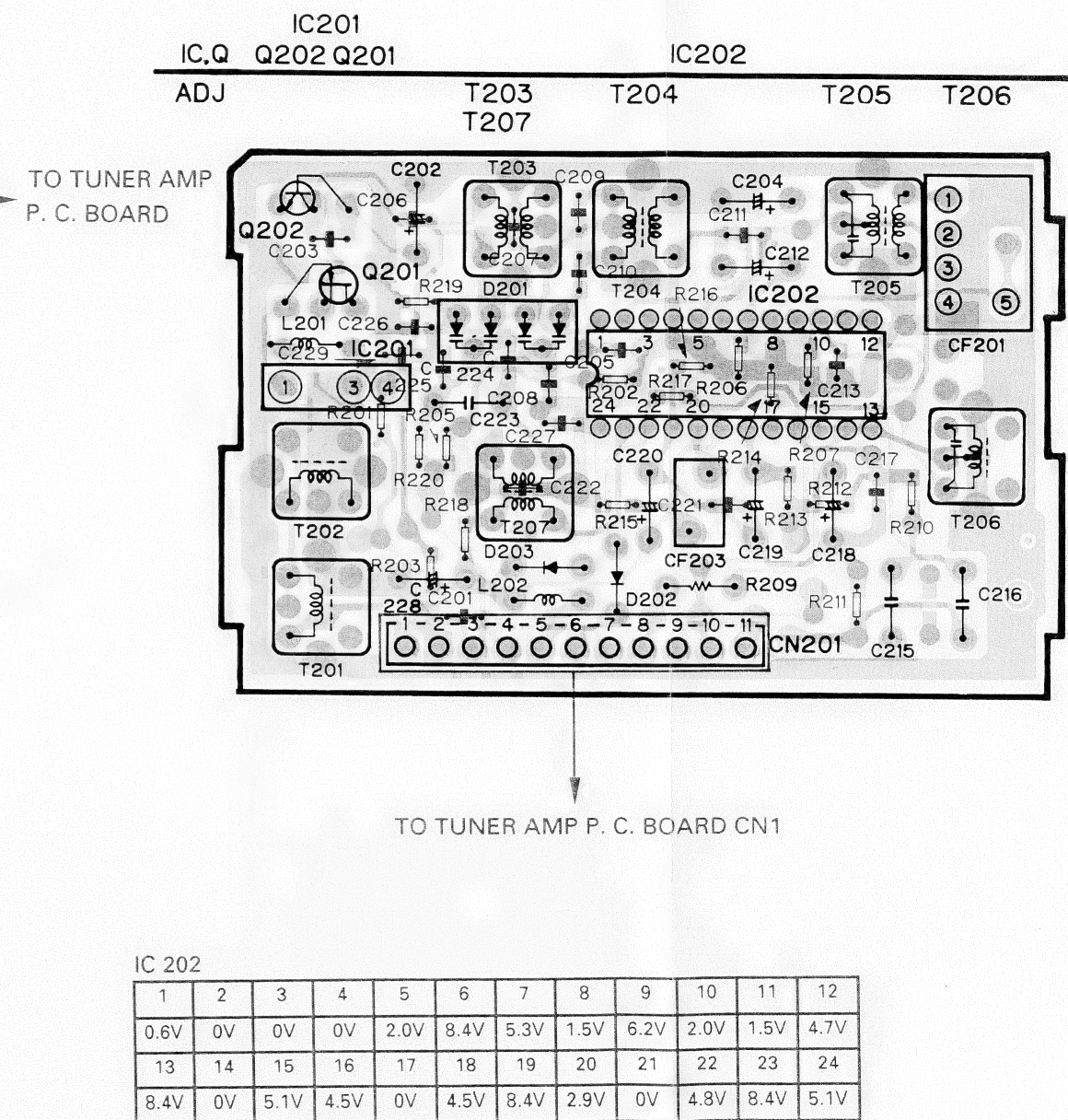


Fig. 20

Fig. 21

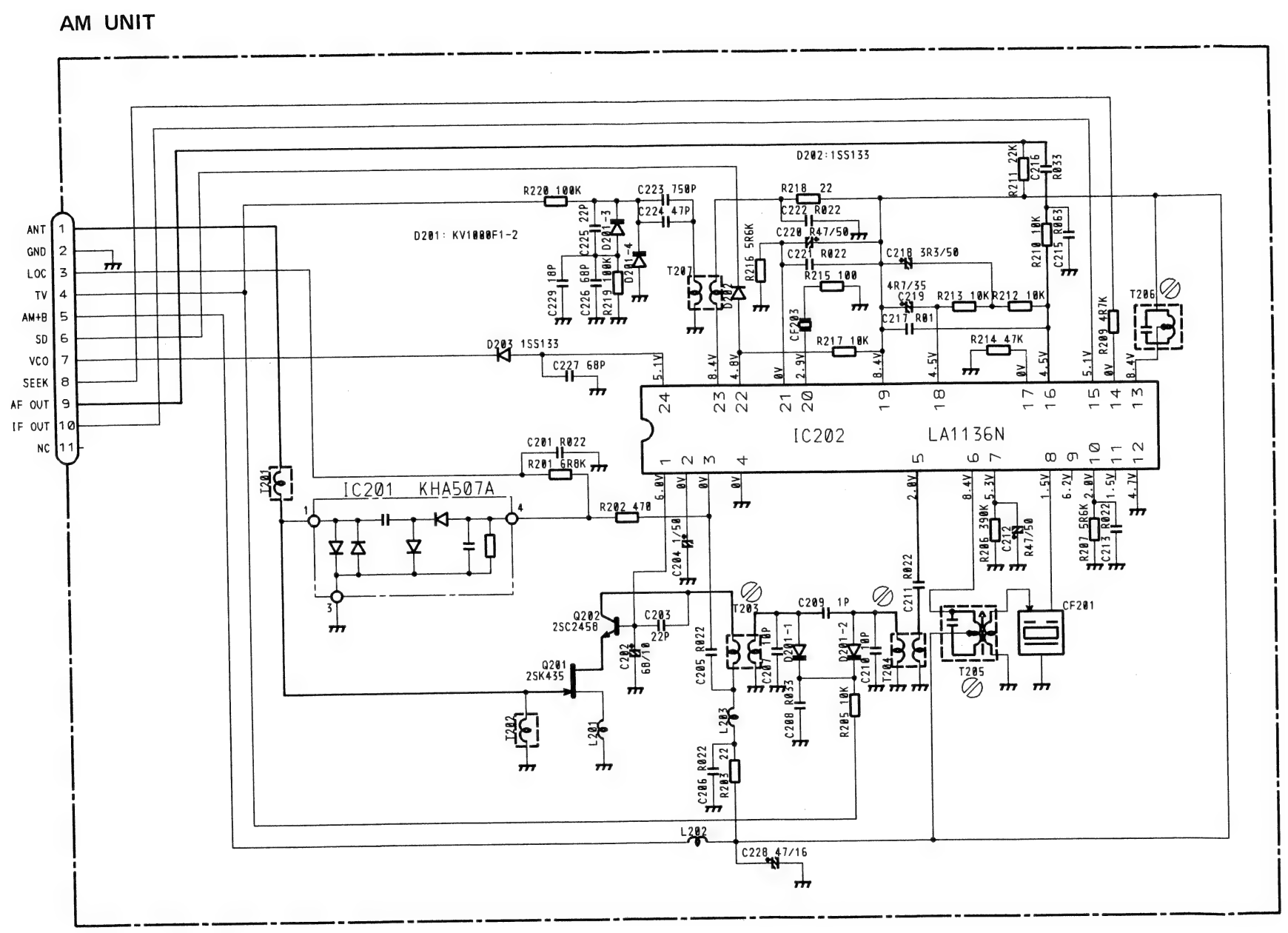


Fig. 22

13. CHASSIS EXPLODED VIEW

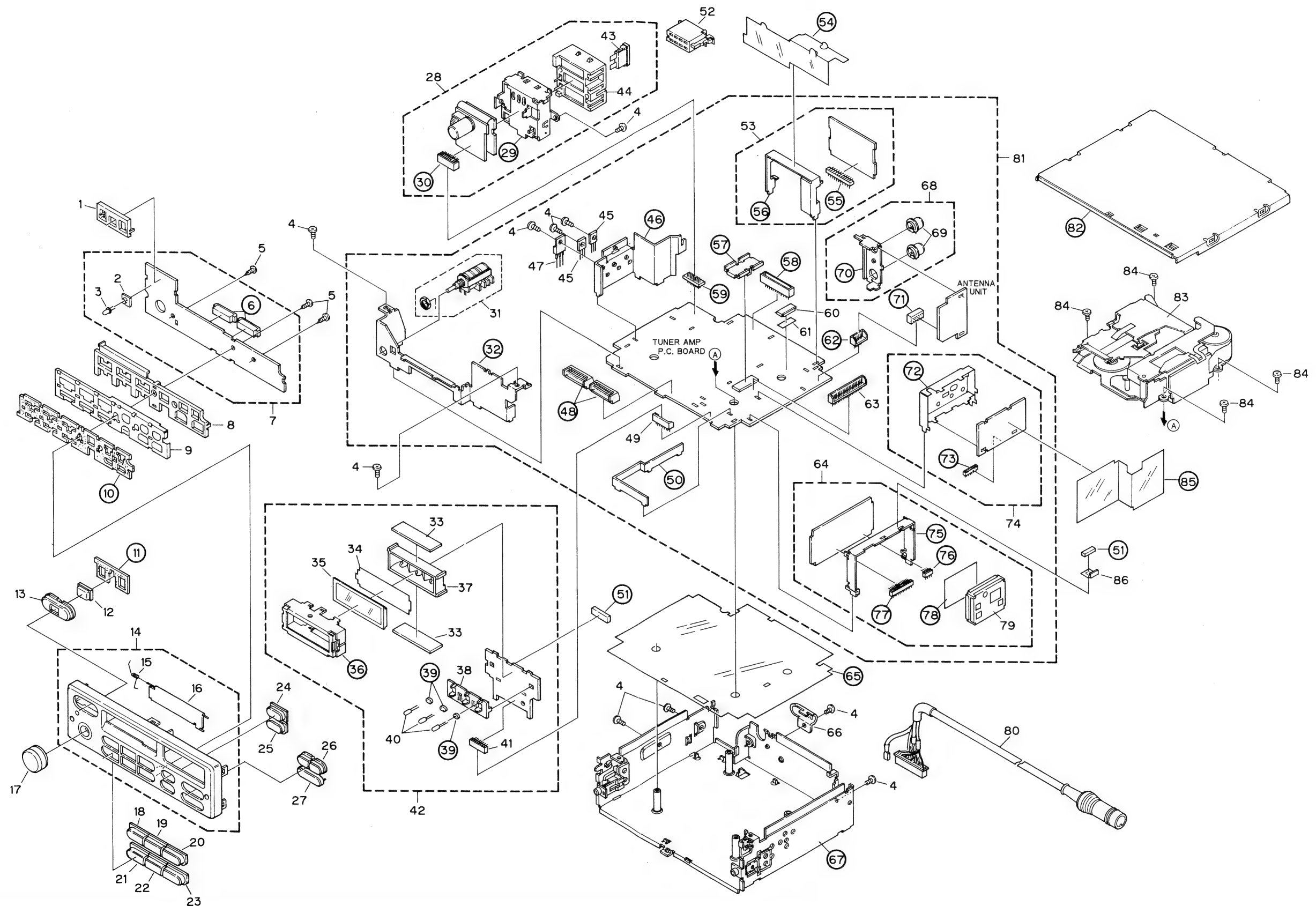


Fig. 23

NOTE:

- The parts marked with "●" may need long time to supply and their supply is subject to refuse as the case may be.
- Because the parts with encircled number shown on the dismantling drawing are not spare parts, we are unable to supply them in principle.

● Parts List

| Mark No. | Description | Part No. | Mark No. | Description | Part No. |
|----------|------------------------|--------------|----------|-------------------------|--------------|
| 1 | Holder | CNV2765 | 46 | Heat Sink | CNC3852 |
| 2 | Spacer | CNV2060 | 47 | Transistor (Q901) | 2SB945 |
| 3 | LBD (D971) | BR3668S | 48 | Connector | CKS1654 |
| 4 | Screw | BMZ30P060FMC | 49 | Plug | CKS-647 |
| 5 | Screw | BPZ26P080FMC | 50 | Earth | CNC4022 |
| 6 | Connector | CKS1660 | 51 | Cushion | CNM3213 |
| ● 7 | Key Board Unit | CWM2876 | 52 | Connector | CKS2330 |
| 8 | Holder | CNV2764 | ● 53 | AM Unit | CWA1054 |
| 9 | Earth | CNC3734 | 54 | Insulator | CNM3119 |
| 10 | Cushion | CNM3040 | 55 | Plug | CKF1017 |
| 11 | Cushion | CNM3041 | 56 | Holder | CNC4020 |
| 12 | Button (MODE) | CAC2919 | 57 | Heat Sink | CNG-368 |
| 13 | Button (+/-) | CAC2918 | 58 | Plug | CKS-577 |
| 14 | Grille Unit | CXA4304 | 59 | Plug | CKS-731 |
| 15 | Spring | CBH1425 | 60 | IC (IC501) | CX-7925B |
| 16 | Door | CAT1398 | 61 | Spacer | CNM3383 |
| 17 | Knob | CAA1198 | 62 | Plug | CKS-645 |
| 18 | Button (1) | CAC2908 | 63 | Plug | CKS-659 |
| 19 | Button (2) | CAC2909 | ● 64 | FM Unit | CWE1212 |
| 20 | Button (3) | CAC2910 | 65 | Insulator | CNM3116 |
| 21 | Button (4) | CAC2911 | 66 | Holder | CNC3736 |
| 22 | Button (5) | CAC2912 | 67 | Chassis Unit | CXA4279 |
| 23 | Button (6) | CAC2913 | 68 | Holder Unit | CXA4280 |
| 24 | Button (BAND) | CAC2914 | 69 | Antenna Jack | CKX1018 |
| 25 | Button (WB) | CAC2916 | 70 | Holder | CNC3735 |
| 26 | Button (PROG/SCAN) | CAC2916 | 71 | Connector | CKS-664 |
| 27 | Button (UP, DOWN) | CAC2917 | 72 | Case | CNC3854 |
| ● 28 | Power Supply Unit | CWM2753 | 73 | Plug | CKS1616 |
| 29 | Holder | CNC3746 | ● 74 | WB Unit | CWE1243 |
| 30 | Connector | CKS-750 | 75 | Holder | CNC3414 |
| 31 | Volume (VR460) | CCS1188 | 76 | Plug | CKS1614 |
| 32 | Holder | CNC3737 | 77 | Plug | CKS1621 |
| 33 | Connector | CNV2920 | 78 | Insulator | CNM2842 |
| 34 | Sheet | CNM3143 | 79 | FM Front End | CWB1059 |
| 35 | LCD | CAW1160 | 80 | Cord | CDE3712 |
| 36 | Case | CNC3492 | ● 81 | Tuner Amp Unit | CWM2874 |
| 37 | Holder | CNV2946 | 82 | Case | CNB1472 |
| 38 | Holder | CNV2897 | ● 83 | Cassette Mechanism Assy | CXX1678 |
| 39 | Spacer | CNM-903 | 84 | Screw | BMZ26P050FMC |
| 40 | Lamp (1L981-983) | CEL1229 | 85 | Insulator | CNM3118 |
| 41 | Connector | CKS-666 | 86 | Earth | CNC4321 |
| ● 42 | LCD Unit | CWM2875 | | | |
| 43 | Fuse | CEX1135 | | | |
| 44 | Connector | CKM1088 | | | |
| 45 | Transistor (Q751, 902) | 2SA1358 | | | |

14. PACKING METHOD

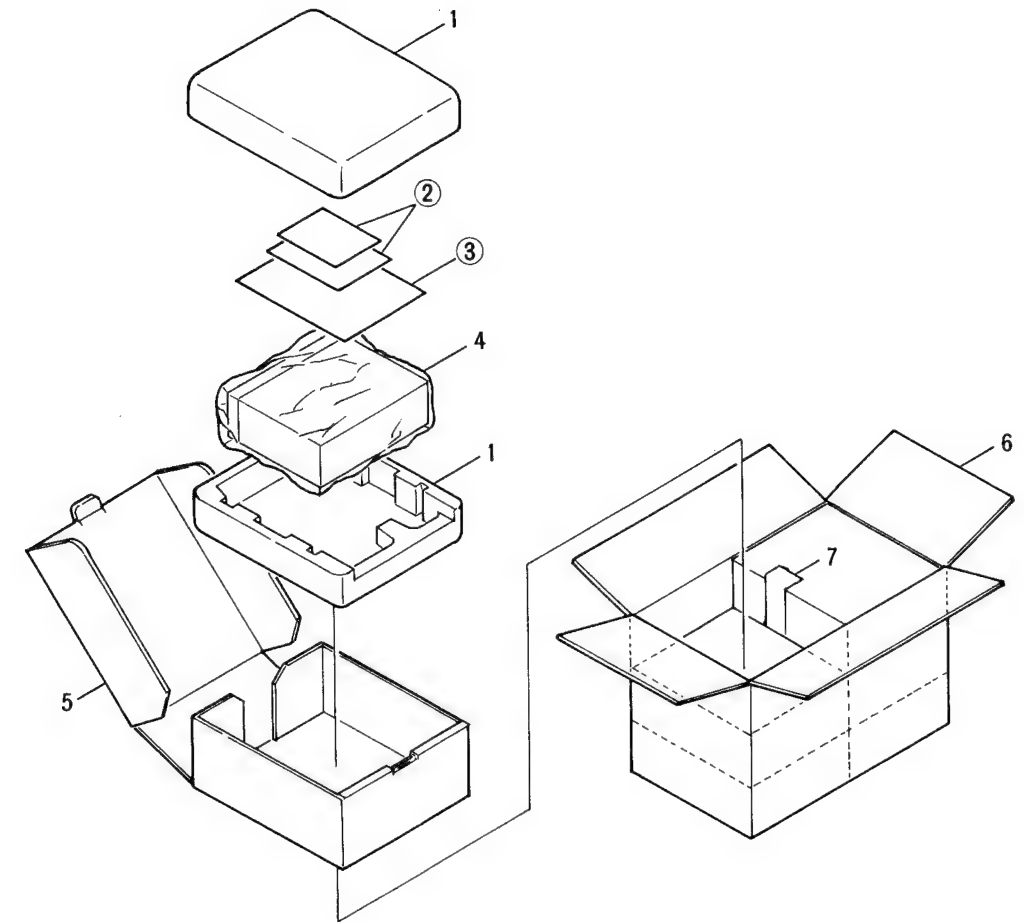


Fig. 24

● Parts List

| Mark No. | Description | Part No. | Mark No. | Description | Part No. |
|----------|--------------------------------|----------|----------|-------------------|----------|
| 1 | Styrofoam (×2) (US) | CHP1439 | * 4-4 | Card | CRY1024 |
| | Styrofoam (×2) (X1H) | CHP1479 | 5 | Carton (US) | CHG2093 |
| * 2 | Film | CNM1269 | | Carton (X1H) | CHG2200 |
| * 3 | Name Plate | CAL2380 | 6 | Contain Box (US) | CHL2093 |
| 4-1 | Polyethylene Bag | CEG-162 | * 7 | Contain Box (X1H) | CHL2200 |
| 4-2 | WB Manual | CRB1105 | | Paper Sheet (X1H) | CHW1030 |
| 4-3 | Owner's Manual (US) (English) | CRB1143 | | | |
| | Owner's Manual (X1H) (English) | CRB1245 | | | |

*: Non Spare Part

15. CASSETTE MECHANISM EXPLODED VIEW

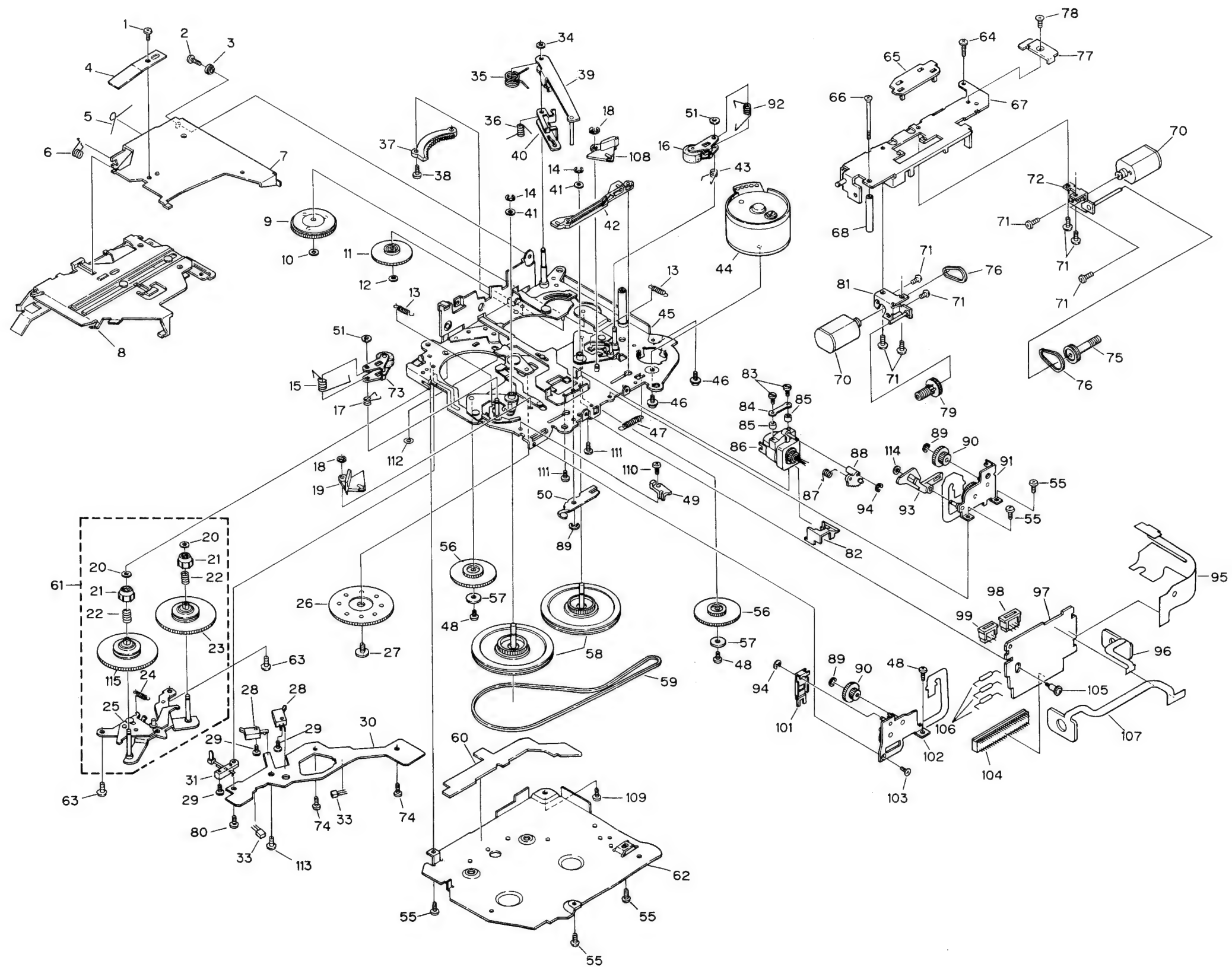


Fig. 25

● Parts List

| Mark No. | Description | Part No. | Mark No. | Description | Part No. |
|----------|----------------------|--------------|-------------------------|-------------------|--------------|
| 1 | Screw(M1.4×1.4) | HBA-147 | 46 | Screw | PMS26P025FMC |
| 2 | Screw | BMZ20P040FMC | 47 | Spring | CBH-830 |
| 3 | Bush | CLB-663 | 48 | Screw(M2×2.5) | HBA-175 |
| 4 | Spring | CBE1023 | 49 | Spacer | CNW-945 |
| 5 | Spring | CBH-867 | 50 | Spring | CBL1050 |
| 6 | Spring | CBH-837 | 51 | Washer | CBF1025 |
| 7 | Arm | CNC2373 | 52 | | |
| 8 | Holder Unit | CXA4527 | 53 | Spring | CBL-893 |
| 9 | Gear Unit | CXA4022 | 54 | Collar | CLA1110 |
| 10 | Washer | CBF1026 | 55 | Screw | BMZ20P025FMC |
| 11 | Gear | CNY-271 | 56 | Gear | CNV1616 |
| 12 | Washer | CBF-126 | 57 | Collar | CLA1238 |
| 13 | Spring | CBH-835 | 58 | Flywheel | CNR1572 |
| 14 | E Type Washer | CBG1003 | 59 | Belt | CNT1046 |
| 15 | Spring | CBH1277 | 60 | Insulator | CNM2592 |
| 16 | Pinch Roller Unit | CXA2608 | 61 | Reel Assy | CXA4025 |
| 17 | Spring | CBH1197 | 62 | Cover | CNC2829 |
| 18 | E Type Washer | YE25FUC | 63 | Screw | BMZ20P030FMC |
| 19 | Arm | CNV1254 | 64 | Screw(M1.7×6) | CBA1125 |
| 20 | Washer | CBF1022 | 65 | Holder | CNV1252 |
| 21 | Collar | CNW-932 | 66 | Screw(M2×25) | CBA-165 |
| 22 | Spring | CBH-827 | 67 | Guide | CNC2219 |
| 23 | Reel Unit | CXA4023 | 68 | Spacer | CNC1651 |
| 24 | Spring | CBH-868 | 69 | | |
| 25 | Bracket Unit | CXA1481 | 70 | Motor | CXA3596 |
| 26 | Gear | CNW-944 | (FF/REW, Head Position) | | |
| 27 | Screw(M2×4) | CBA1106 | 71 | Screw(M2×2.2) | HBA-174 |
| 28 | Switch(70μS, CST IN) | CSN1003 | 72 | Bracket Unit | CXA2605 |
| 29 | Screw(M1.7×5.5) | CBA1025 | 73 | Pinch Roller Unit | CXA2609 |
| 30 | P.C. Board | CNP1223 | 74 | Screw(M2×2.5) | CBA1037 |
| 31 | Switch(CST SET) | CSN-089 | 75 | Pulley | CNV1255 |
| 32 | | | 76 | Belt | CNT1030 |
| 33 | Magnetic Resistive | DM-106B | 77 | Plate | CNC3632 |
| 34 | Washer | CBF-046 | 78 | Screw(M2×2.2) | HBA-212 |
| 35 | Spring | CBH1270 | 79 | Pulley | CNV1256 |
| 36 | Spring | CBH-886 | 80 | Screw(M2×5) | CBA1054 |
| 37 | Gear | CNV1075 | 81 | Bracket Unit | CXA1381 |
| 38 | | | 82 | Cover | CNV1489 |
| 39 | Arm Unit | CXD2859 | 83 | Screw(M1.4×8) | CBA1169 |
| 40 | Arm | CNG-618 | 84 | Spring | CBE-114 |
| 41 | Washer | HBF-179 | 85 | Azimuth Rubber | CNY-134 |
| 42 | Lever | CNV1257 | 86 | Head Unit | CXA3551 |
| 43 | Spring | CBH1196 | 87 | Spring | CBH-829 |
| 44 | Motor(Capstan) | CXM1055 | 88 | Gear | CNW-939 |
| 45 | Chassis Unit | CXA3544 | 89 | E Type Washer | YE12FUC |
| | | | 90 | Gear | CNV1262 |

| Mark No. | Description | Part No. | Mark No. | Description | Part No. |
|----------|----------------|----------|----------|---------------|----------|
| 91 | Holder Assy | CXA1546 | 106 | Diode | 1S1555 |
| 92 | Spring | CBH1276 | 107 | P.C. Board | CNP2110 |
| 93 | Arm | CNV1495 | 108 | Arm | CNV1253 |
| 94 | E Type Washer | YE15FUC | 109 | Screw(M2×6) | CBA1004 |
| 95 | P.C. Board | CNP1227 | 110 | Screw(M2×4) | CBA1015 |
| 96 | P.C. Board | CNP1738 | 111 | Screw(M2×2.5) | CBA1041 |
| 97 | P.C. Board | CNP2747 | 112 | Washer | CBE-112 |
| 98 | Connector(6P) | CKS1075 | 113 | Screw(M1.7×3) | CBA-186 |
| 99 | Connector(4P) | CKS1073 | 114 | Washer | CBF1022 |
| 100 | | | 115 | Reel Unit | CXA4024 |
| 101 | Arm | CNH-004 | | | |
| 102 | Holder Assy | CXA1548 | | | |
| 103 | Screw(M2×2) | HBA-209 | | | |
| 104 | Connector(20P) | CKS-678 | | | |
| 105 | Screw(M2×2×3) | CBA1022 | | | |

16. ELECTRICAL PARTS LIST

NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/8S□□□J, RS1/10S□□□J

Chip Capacitor (except for OQS.....)

CKS....., CCS....., CSZS.....

Unit Number:
Unit Name :AM Unit

MISCELLANEOUS

| ====Circuit Symbol & No. Part | Name===== | Part No. |
|-------------------------------|-------------------|------------|
| IC 201 | | KHA507A |
| IC 202 | | LA1136N |
| Q 201 | | 2SK435 |
| Q 202 | | 2SC2458 |
| D 201 | | KV1280F1-2 |
| D 202 203 | | 1SS133 |
| L 201 | Inductor | CTF-185 |
| L 202 | Ferri-Inductor | LAU680K |
| L 203 | Ferri-Inductor | LAU330K |
| T 201 | Coil | CTB1051 |
| T 202 | Coil | CTB-171 |
| T 203 | Coil | CTB1044 |
| T 204 | Coil | CTB1045 |
| T 205 | Coil | CTE1030 |
| T 206 | Coil | CTE1034 |
| T 207 | Coil | CTB1043 |
| CF 201 | Filter | CTF-100 |
| CF 203 | Ceramic Resonator | CTF1039 |

RESISTORS

| | |
|-----------------------|-------------|
| R 201 | RS1/10S682J |
| R 202 | RS1/10S471J |
| R 203 218 | RS1/10S220J |
| R 205 210 212 213 217 | RS1/10S103J |
| R 206 | RS1/10S394J |

| | |
|-------|--------------|
| R 207 | RS1/10S562J |
| R 209 | RD1/4PS472JL |
| R 211 | RS1/10S223J |
| R 214 | RS1/10S473J |
| R 215 | RS1/10S101J |

| | |
|-----------|-------------|
| R 216 | RS1/10S562J |
| R 219 220 | RS1/10S104J |

CAPACITORS

| | |
|-------------------------------|--------------|
| C 201 205 206 211 213 221 222 | CKSQYB223K25 |
| C 202 | CEA680M10LS |
| C 203 225 | CCSQCH220J50 |
| C 204 | CEA010M50LS2 |
| C 207 210 | CCSQCH100D50 |

| | |
|-----------|--------------|
| C 208 | CKSQYB333K25 |
| C 209 | CCSQCH010C50 |
| C 212 220 | CEA47M50LS2 |
| C 215 | CQMA683J50 |
| C 216 | CQMA333J50 |

| | |
|-------|--------------|
| C 217 | CKSQYB103K50 |
| C 218 | CEA3R3M50LS |
| C 219 | CEA4R7M35LS |
| C 223 | CQPAH751G2A |
| C 224 | CCSQCH470J50 |

| ====Circuit Symbol & No. Part | Name===== | Part No. |
|-------------------------------|-----------|--------------|
| C 226 | | CCSQCH680J50 |
| C 227 | | CCSQCH680J50 |
| C 228 | | CEA470M16LS |
| C 229 | | CCSQCH180J50 |

Unit Number:
Unit Name :FM Unit

MISCELLANEOUS

| | | |
|------------|----------|-----------|
| IC 51 | | KHA141A |
| IC 101 | | KHA146 |
| Q 11 82 83 | | 2SC3295 |
| Q 12 51 | | DTC124EK |
| Q 81 84 | | 2SA1162 |
| D 81 | | MA153-MC |
| D 82 | | MA151K-MH |
| D 152 | | MA704-M1K |
| L 51 | Inductor | CTF1104 |
| T 51 | Coil | CTC1065 |

| | | |
|----------|---------------------|------------|
| CF 51 52 | Ceramic Filter | CTF-182 |
| VR 51 | Semi-fixed 22kΩ (B) | CCP1021 |
| VR 52 | Semi-fixed 22kΩ (B) | CCP1021 |
| VR 53 | Semi-fixed 33kΩ (B) | VRTB4VS333 |
| VR 101 | Semi-fixed 15kΩ (B) | CCP1020 |
| VR 152 | Semi-fixed 22kΩ (B) | CCP1021 |
| | FM Front End | CWB1059 |

RESISTORS

| | |
|------|-------------|
| R 2 | RS1/10S102J |
| R 3 | RS1/10S101J |
| R 6 | RS1/10S122J |
| R 7 | RS1/10S103J |
| R 11 | RS1/10S0R0J |

| | |
|----------------|-------------|
| R 52 | RS1/10S331J |
| R 53 | RS1/10S103J |
| R 58 101 | RS1/10S332J |
| R 72 | RS1/10S0R0J |
| R 81 82 89 155 | RS1/10S223J |

| | |
|--------------|-------------|
| R 83 | RS1/10S222J |
| R 84 156 157 | RS1/10S272J |
| R 85 87 | RS1/10S182J |
| R 86 | RS1/10S680J |
| R 88 | RS1/10S105J |

| | |
|-------|-------------|
| R 99 | RS1/10S0R0J |
| R 102 | RS1/10S392J |
| R 103 | RS1/10S183J |
| R 152 | RS1/10S203J |

CAPACITORS

| | |
|-------------|--------------|
| C 1 | CKSQYB103K50 |
| C 3 | CKSQYB102K50 |
| C 11 60 132 | CKSQYB473K25 |
| C 57 | CEVR47M50 |
| C 62 82 | CEV010M50 |

| ====Circuit Symbol & No. Part | Name===== | Part No. |
|-------------------------------|-----------|--------------|
| C 63 | | CEVNP4R7M16 |
| C 70 | | CCSQCH100D50 |
| C 81 158 | | CKSQYB104K25 |
| C 84 | 33 μF/2V | CCH1055 |
| C 103 105 | | CEV470M16 |

| | |
|-----------|--------------|
| C 154 | CKSQYB472K50 |
| C 159 160 | CKSQYB273K50 |
| C 161 | CEV101M10 |

Unit Number:
Unit Name : WB Unit

MISCELLANEOUS

| | | |
|--------|--|----------|
| IC 801 | | TK10483Z |
| IC 802 | | KHA804 |
| Q 801 | | 2SK241 |
| Q 802 | | 2SC2786 |
| D 801 | | KV1310 |

| | | |
|---------------|------|---------|
| D 802 | | 1SS133 |
| L 801 802 804 | Coil | CTC1006 |
| L 803 | Coil | CTC1030 |
| L 805 | Coil | CTE1001 |
| T 801 | Coil | CTE1002 |

| | | |
|--------|-------------------|---------|
| T 802 | Coil | CTE1003 |
| CF 801 | FM Ceramic Filter | CTF-101 |
| CF 802 | Filter | CTF1004 |
| X 801 | Crystal Resonator | CSS1001 |
| | Bead Core | CTX-022 |

RESISTORS

| | |
|-----------|--------------|
| R 802 806 | RD1/4PS331JL |
| R 803 | RD1/4PS682JL |
| R 804 | RD1/4PS153JL |
| R 805 | RD1/4PS181JL |
| R 807 | RD1/4PS470JL |

| | |
|-----------|--------------|
| R 808 | RS1/10S102J |
| R 809 819 | RS1/10S103J |
| R 810 | RD1/4PS104JL |
| R 811 | RD1/4PS103JL |
| R 812 | RD1/4PS392JL |

| | |
|-----------|--------------|
| R 813 814 | RD1/4PS332JL |
| R 815 816 | RD1/4PS473JL |
| R 817 | RD1/4PS183JL |

CAPACITORS

| | |
|---------------|--------------|
| C 801 811 | CCSQCH020C50 |
| C 802 803 | CCSQCH120J50 |
| C 804 807 810 | CKSQYB102K50 |
| C 805 | CCSQCH030C50 |
| C 806 818 821 | CKSQYB103K50 |

| | |
|-----------|--------------|
| C 808 809 | CCSQYB101J50 |
| C 812 | CCSQCH010C50 |
| C 813 | CCSQCH180J50 |
| C 814 | CEA010M50LS2 |
| C 815 816 | CQEA683J50 |

| | |
|-----------|--------------|
| C 817 | CKSQYB473K25 |
| C 819 | CCSQCH040C50 |
| C 820 | CCSQCH101J50 |
| C 822 823 | CKSQYF104Z25 |
| C 824 | CEA470M16LS |

| | |
|-------|-------------|
| C 825 | CKSYF224Z50 |
|-------|-------------|

Unit Number :
Unit Name : Power Supply Unit

MISCELLANEOUS

| | |
|-----------|----------|
| D 651 652 | SIB01-01 |
| L 651 | CTH1077 |
| L 652 | CTH1092 |
| FU 651 | CEK1008 |
| | CEK1135 |

| ====Circuit Symbol & No. Part | Name===== | Part No. |
|-------------------------------|-----------|--------------|
| RESISTORS | | |
| R 651 | | RD1/4PS222JL |
| R 652 653 | | RD1/4PS472JL |

CAPACITORS

| | | |
|-----------|-------------|-------------|
| C 651 | 1000 μF/16V | CCH1057 |
| C 652 | 2200 μF/16V | CCH1001 |
| C 653 654 | | CKDYF223Z50 |
| C 655 | | CEA4R7M35L2 |

Unit Number:
Unit Name :Tuner Amp Unit

| |
|---------------------|
| Tuner Amp Unit |
| Consists of |
| Tuner Amp P.C.Board |
| Antenna Unit |

MISCELLANEOUS

| | |
|--------|---------|
| IC 181 | CWW1145 |
| IC 182 | PA5011 |
| IC 183 | KHA197 |
| IC 251 | KHA911 |
| IC 451 | KHA260 |

| | |
|------------|-----------|
| IC 501 | CX-7925B |
| IC 551 552 | NJM2068SD |
| IC 601 | PA3022 |
| IC 701 | PD4332C |
| IC 702 | P-2100R |

| | |
|------------|---------|
| IC 751 | PA1004A |
| IC 752 | KHA241 |
| IC 851 852 | KHA157 |
| IC 853 | KHA187 |
| IC 901 | KHA906 |

| | |
|---------------------------------------|----------|
| Q 451 452 504 605 606 704 715 753 903 | 2SC2458 |
| Q 501 601 602 603 604 701 705 706 758 | DTC124ES |
| Q 502 702 710 711 712 713 759 760 | DTA144ES |
| Q 503 | 2SK330 |
| Q 505 | 2SA1048 |

| | |
|-------------------|----------|
| Q 707 752 | 2SB808 |
| Q 708 | 2SC3113 |
| Q 709 | DTC144ES |
| Q 714 | 2SD1861 |
| Q 716 717 718 719 | DTC144ES |

| | |
|---|----------|
| Q 751 902 | 2SA1358 |
| Q 756 | 2SB1238 |
| Q 761 | DTC143ZS |
| Q 901 | 2SB945 |
| D 181 251 252 253 451 452 453 454 455 501 | 1SS133 |

| | |
|---|-----------|
| D 503 | HZS3R0EB2 |
| D 601 602 603 702 703 704 705 707 708 709 | 1SS133 |
| D 706 | MA700 |
| D 710 711 712 713 730 731 732 733 734 735 | 1SS133 |
| D 736 737 754 756 757 758 902 903 904 | 1SS133 |

| | |
|-----------|------------|
| D 751 753 | ERA15-08VH |
| D 752 | ERA15-08VH |
| D 755 | 2Z30 |
| D 901 | RD18JSB2 |
| D 905 | 1SS133 |

| | | |
|---------------|----------------|----------|
| L 501 704 753 | Ferri-Inductor | LAU150K |
| L 701 | Inductor | CTF1051 |
| L 702 | Inductor | LPSQR68K |
| L 703 705 706 | Inductor | LPSQ220K |
| L 752 | Inductor | CTF1053 |

| | | |
|------------|-------------------|---------------|
| CG 181 182 | Surge Protector | DSP-201M |
| TH 901 | Thermistor | ERP-F3A2M681Z |
| IB 704 | | CWW1189 |
| IB 705 | | CWW1222 |
| X 501 | Crystal Resonator | CSS1011 |

RESISTORS

CAPACITORS

| -----Circuit | Symbol | & No. | Part | Name----- | Part No. |
|--------------|--------|-------|------|-----------|--------------|
| C 601 | 602 | 705 | | | CEA470M6R3LS |
| C 803 | | | | | CEAR68M50LS2 |
| C 604 | 703 | 761 | | | CKSYF224Z50 |
| C 611 | | | | | CCSQCH390J50 |
| C 612 | | | | | CKSQYF154Z50 |

| | | |
|-------|-------------------|--------------|
| C 613 | | CKSQYB392K50 |
| C 701 | 702 | CCSQCH330J50 |
| C 710 | 711 | CKSQYB682K50 |
| C 714 | | CCSQCH101J50 |
| C 715 | 770 | CKSQYB102K50 |
| C 716 | | CKSQYF473Z50 |
| C 718 | | CEA3R3M50LS |
| C 720 | | CKSQYB472K50 |
| C 755 | | CEA220M50L2 |
| C 758 | 760 765 768 | CKSQYF473Z50 |
| C 763 | 772 | CASA4R7M16 |
| C 771 | | CKSQYF104Z50 |
| C 791 | | CKSQYF473Z50 |
| C 901 | 0.47 μ F/5.5V | CCL1016 |
| C 903 | | CEA1R5M50LS2 |
| C 904 | 905 906 | CEA220M16LS |

Unit Name : LCD Unit

MISCELLANEOUS

| | | |
|----------------|------|---------|
| IC 981 | | LC7582A |
| IL 981 982 983 | Lamp | CEL1229 |
| | LCD | CAW1160 |

RESISTORS

| | |
|-----------|-------------|
| R 983 | RS1/10S563J |
| R 984 985 | RS1/10S102J |

CAPACITORS

| | |
|-------|--------------|
| C 982 | CCSQCH681J50 |
| C 983 | CKSYF224Z50 |

Unit Number:
Unit Name : Key Board Unit

MISCELLANEOUS

[illegible]

| | | | | | | | | | | | |
|----|-----|------|--------|--------|---|---|---|---|---------|---------|---------|
| S | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | CSG1044 |
| S | 11 | 12 | 13 | Switch | | | | | | | CSG1044 |
| SW | 14 | 15 | Switch | | | | | | | CSG1037 | |
| IL | 951 | Lamp | | | | | | | CEL1230 | | |

RESISTORS

[illegible]

| -----Circuit Symbol & No. Part | Name----- | Part No. |
|--------------------------------|-----------|----------|
|--------------------------------|-----------|----------|

CAPACITORS

| | | |
|-------|--|--------------|
| C 951 | | CKSQYB102K50 |
|-------|--|--------------|

Unit Number:

Unit Name :Switch P.C.Board

| | | |
|--------|---------------------------|---------|
| S 1 | Switch(CST SET) | CSN-089 |
| S 2 3 | Switch(CST IN,70 μ S) | CSN1003 |
| MR 1 2 | Magnetic Resistive Device | DM-106B |

Unit Number:

Unit Name :P.C.Board Unit

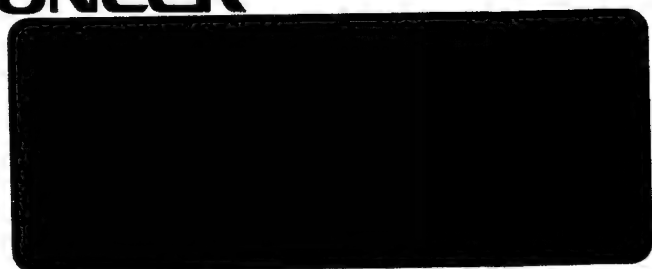
| | | |
|---------|--|--------|
| D 1 2 3 | | 1S1555 |
|---------|--|--------|

Miscellaneous Parts List

| | | |
|-------|--------------------|---------|
| HD 1 | HeadUnit | CXA3551 |
| M 1 2 | Motor(Head,FF/REW) | CXA3596 |
| M 3 | Motor(Capstan) | CXM1055 |

107
xp

Service Manual



ORDER NO.
CRT-468-0

CASSETTE MECHANISM ASSEMBLY

CX-156/A, CX-156/B

- This service manual is for cassette mechanism assembly used in car stereo components.
- Refer to the service manual for individual models for details on sections other than the cassette mechanism assembly.

| Model | Service Manual | Cassette Mechanism Assembly |
|-------------------|----------------|-----------------------------|
| FX-K5/EW | CRT-469 | CX-156/A |
| FX-K5B/EW | | CX-156/A |
| FX-K5SDK/WG | | CX-156/A |
| FEX-55/US, CA, CS | CRT-471 | CX-156/A |
| FEX-50/ES | CRT-470 | CX-156/A |
| KX-E60/EW | CRT-476 | CX-156/B |
| | | |
| | | |
| | | |
| | | |

| Model | Service Manual | Cassette Mechanism Assembly |
|-------|----------------|-----------------------------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

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1. REPLACEMENT OF PARTS IN CASSETTE MECHANISM

• Belt and capstan motor (M3) replacement

1. Remove the four screws and the cover. (Fig. 1)
2. The belt in Fig. 2 can be replaced. (Be sure that the belt is not greased and not twisted.)
3. To replace the capstan motor, remove the two screws shown in Fig. 2.

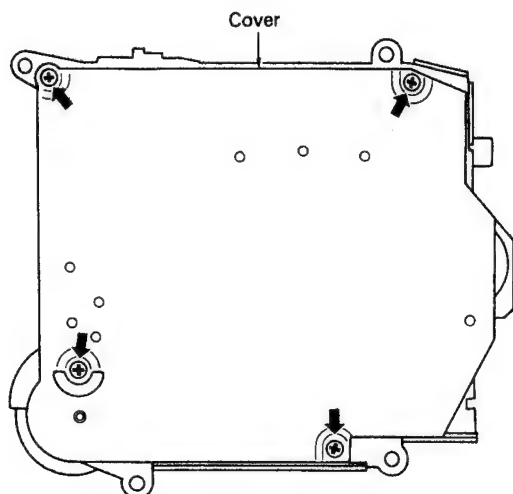


Fig. 1

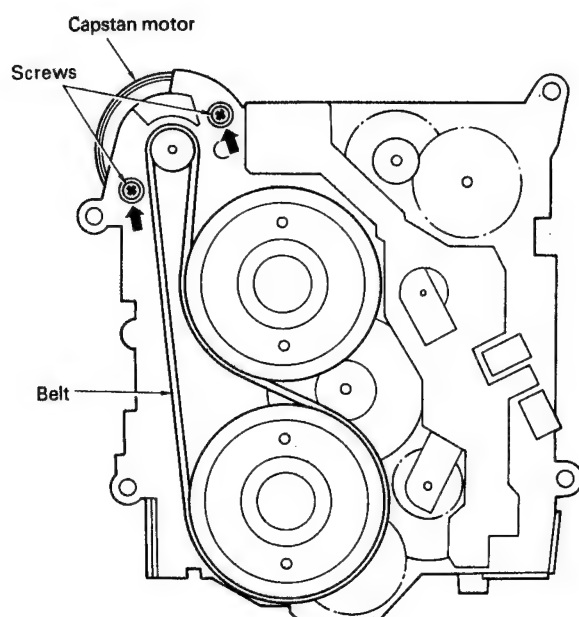


Fig. 2

• Cassette holder removal

1. Turn the capstan motor until the cassette holder drops down. (Do not turn the flywheel directly by hand.)
2. Remove the screw labeled "B", the collar and the spring.
3. Remove unit "A" and the cassette holder "D" and "E".

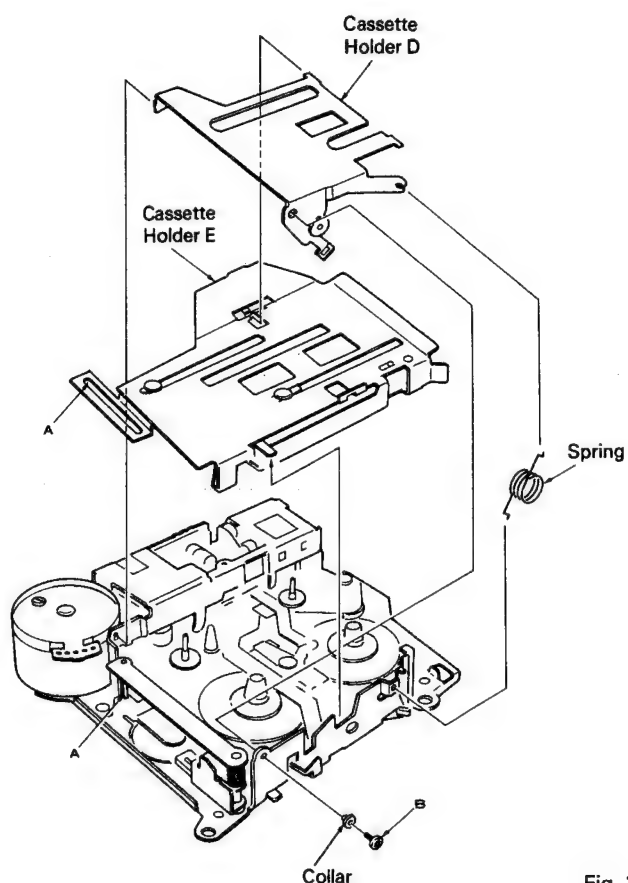


Fig. 3

• Head unit replacement

1. Remove the washer and spring.
2. Remove the screw labeled "F", and the head unit can be removed in the opposite direction.
3. Be careful of the following point during reassembly.
 - Put the head unit pins through the lever holes. (One in front and one in back.)

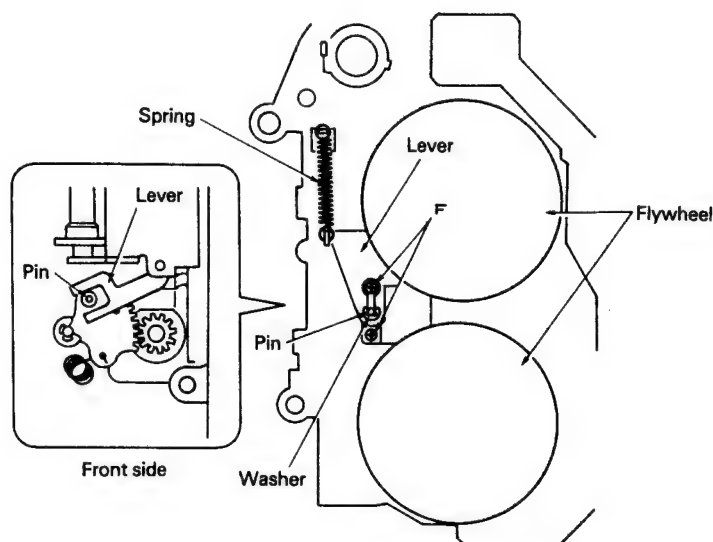


Fig. 4

• Sub-motor replacement (M1 and M2)

1. Remove the two screws labeled "G" and remove the P.C. board unit.
2. The sub-motor can be removed by removing the three screws indicated by the arrows.
3. Sub-motor 2 (for switching the FF/REW gear) can be replaced when the spacer has been removed. (The motor fits very snugly, so some force must be used to remove it.)
4. Sub-motor 1 (for turning and positioning the head) can be replaced by removing the belt, lock washer, pulley and two screws labeled "J".

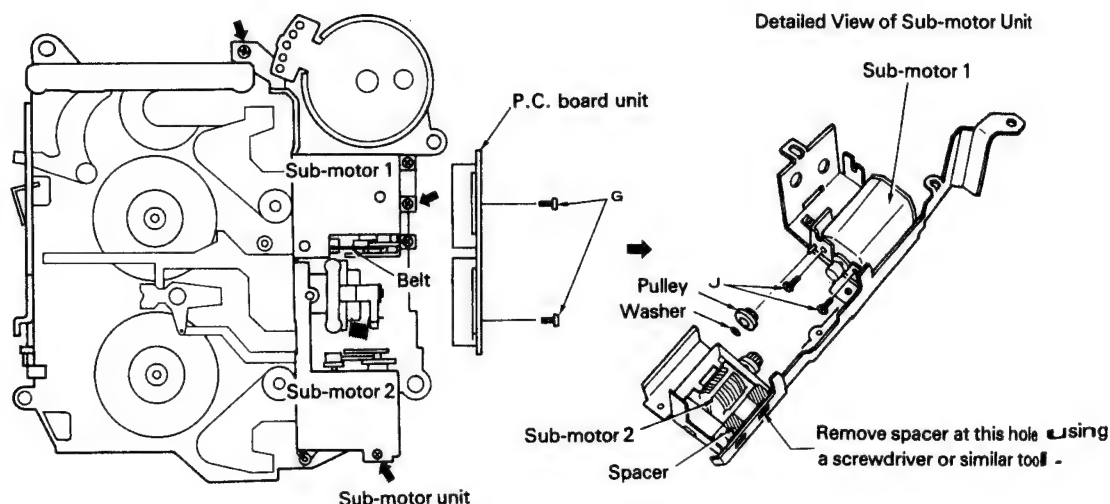


Fig. 5

• **Reel unit replacement**

1. Remove the six screws and the switch P.C. board.
2. Remove the screw labeled "K" and the collar and free the FF/REW idler gear.
3. The reel assy can be replaced by removing the two screws labeled "L" and removing the reel unit.

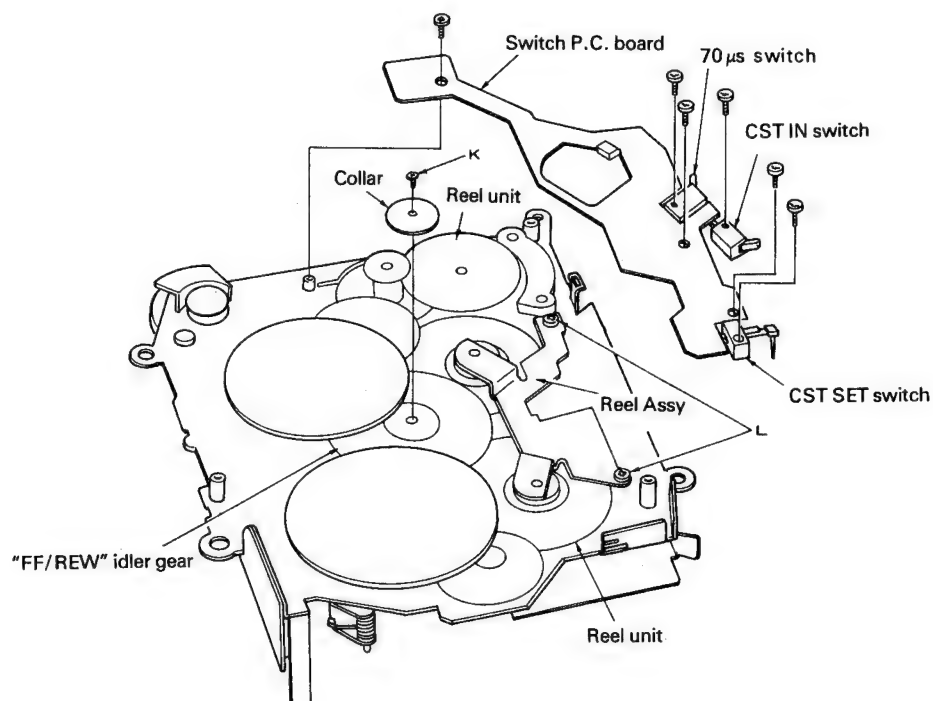


Fig. 6

2. MECHANISM DESCRIPTION

Cassette mechanism assy for CX-156/A is used in this mechanism description.

1. Outline of Mechanism

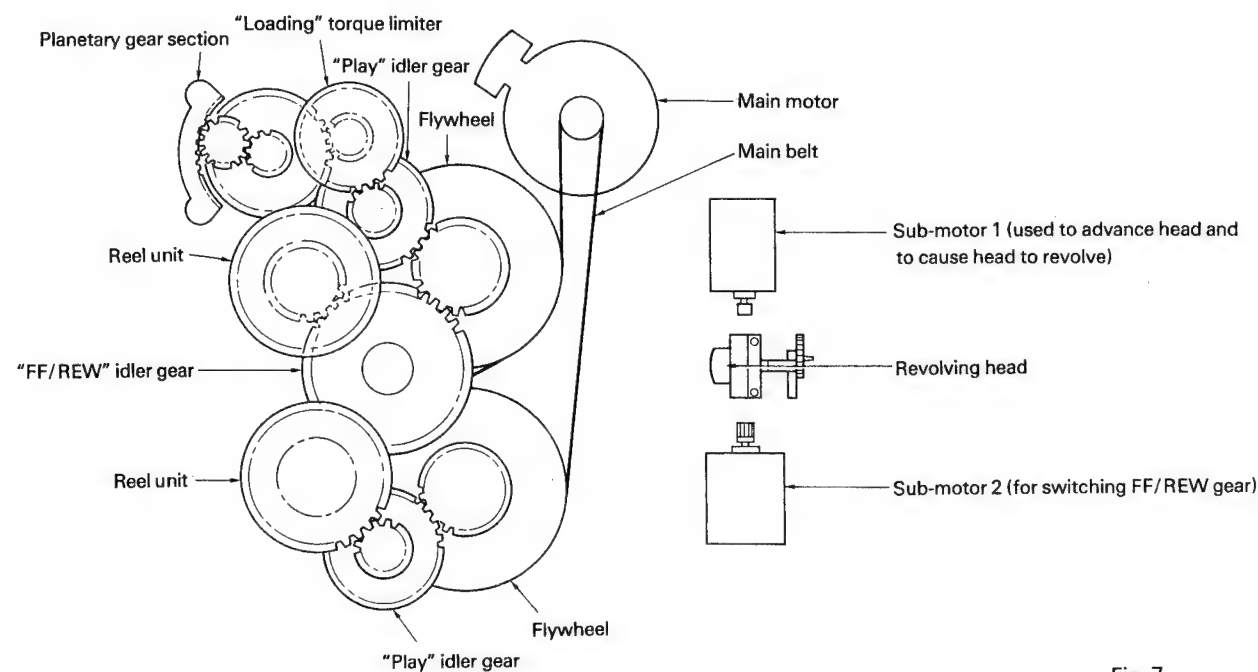


Fig. 7

2. Loading/Eject Function

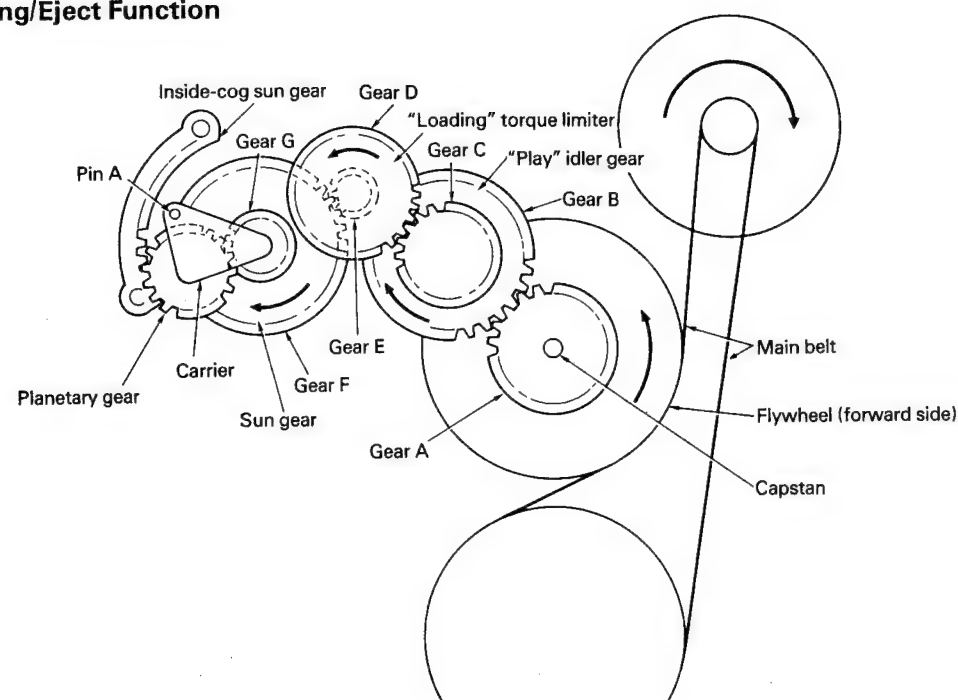


Fig. 8

3. Cassette Tape Load and Eject Mechanism

• Cassette tape loading operation

1. Push the cassette tape lightly in the direction indicated by the arrow. (As shown in Fig. 10, arm "A" and arm "B" connect to spring "A". These are also connected to common axis shaft "A", which is attached to the chassis surface and acts as a swivel. Pin "A", which is caulked to the planetary gear unit carrier, goes through the chassis and fits into the oblong hole of arm "B". Because pin "A" won't move as long as the capstan motor isn't moving, arm "B" won't move either.)
2. When a cassette tape is loaded, arm "A" moves in the direction indicated by the arrow and spring "A" loosens. Lever "A" also moves in the direction indicated by the arrow, and the catch at left of the lever releases arm "C". Arm "C" then turns counterclockwise and opens the CST IN switch. The capstan motor then begins turning forward.
3. The carrier then moves clockwise because the planetary gear moves along the inside-cog sun gear. Pin "A" which is caulked to the carrier also moves in the same direction. (Fig. 11) The movement of pin "A" is causing arm "B" to move counterclockwise. Arm "A" turns in the same fashion and the "A" unit of lever "A" draws the cassette tape in. (Fig. 9)

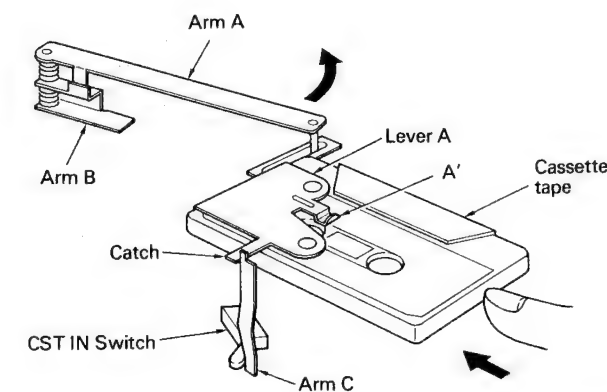


Fig. 9

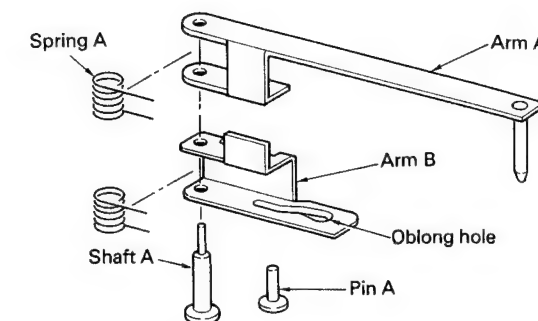


Fig. 10

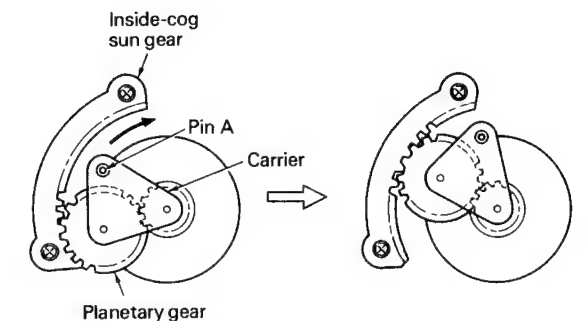


Fig. 11

4. The oblong hole of arm "B" is as shown in Fig. 12. The cassette tape draw-in process will be complete when the pin "A" degree of rotation is θ . Arm "B" will not move while the degree of rotation is θ' .

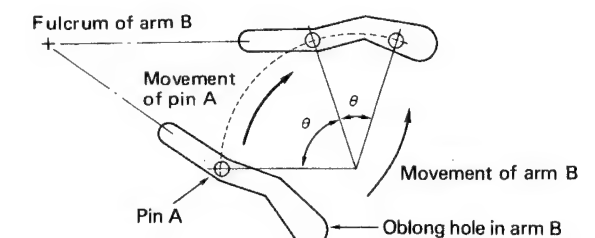


Fig. 12

5. As shown in Fig. 13, arm "C" (caulked to the chassis swivel) is fixed to pin "A" and when the degree of rotation is θ arm "C" is stationary, and when it is θ' arm "C" turns clockwise.

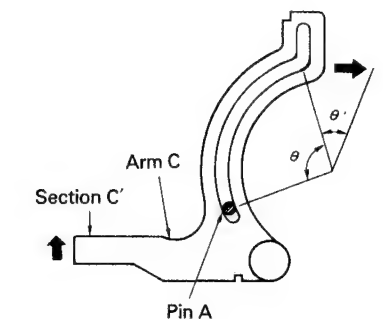


Fig. 13

- As shown in Fig. 14, the "C" unit of arm "C" connects to the cassette arm (which suspends the cassette tape) through spring "C". The arm "C" movement described above in paragraph five makes the "C" unit move in the direction indicated by the arrow in Fig. 14. The cassette arm pushes down holder "A" by means of spring "B". The "C" unit is released when holder "A" drops down.
- In order for the capstan motor to keep turning forward, the planetary gear disengages from the inside-cog sun gear. The cassette tape is ejected following an operation opposite to the loading operation.

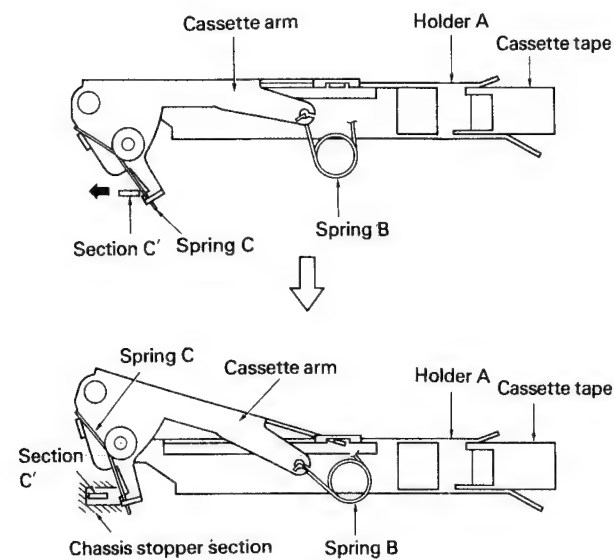


Fig. 14

4. Head Turning and Head Positioning Operations (during forward play)

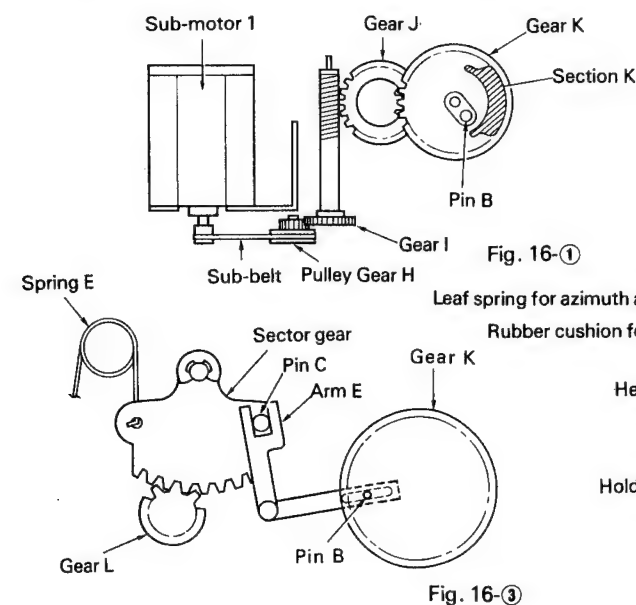


Fig. 16-1

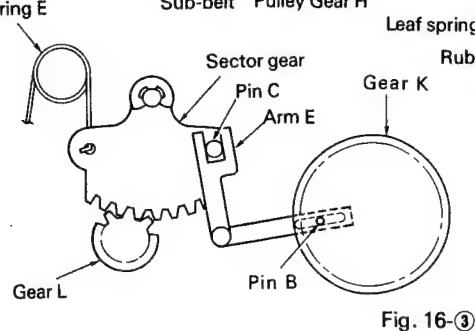


Fig. 16-3

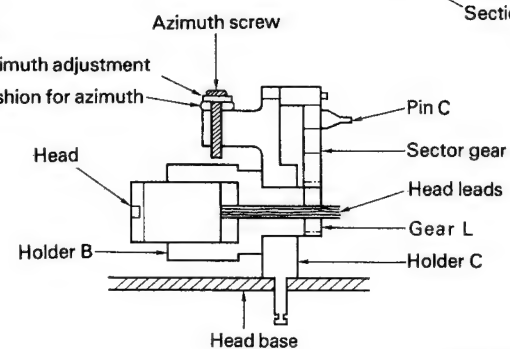


Fig. 16-4

• Eject operation

- Turning on the eject switch reverses the capstan motor. As shown in Fig. 15, spring "D" places slight friction on the planetary gear which causes it to engage with the inside-cog sun gear. The cassette tape is ejected following an operation opposite to the loading operation.

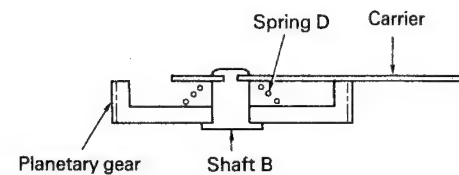


Fig. 15

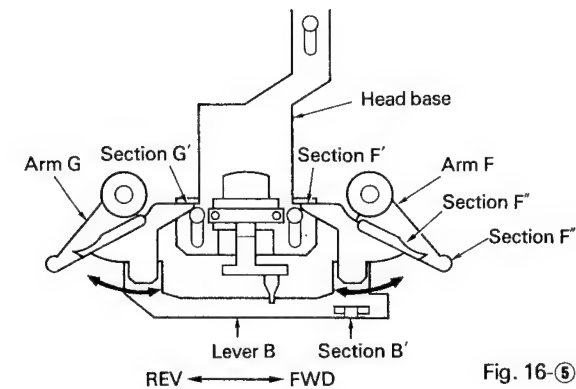


Fig. 16-5

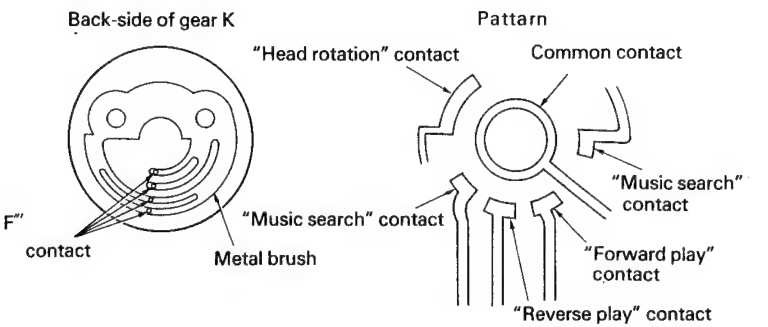


Fig. 16-6

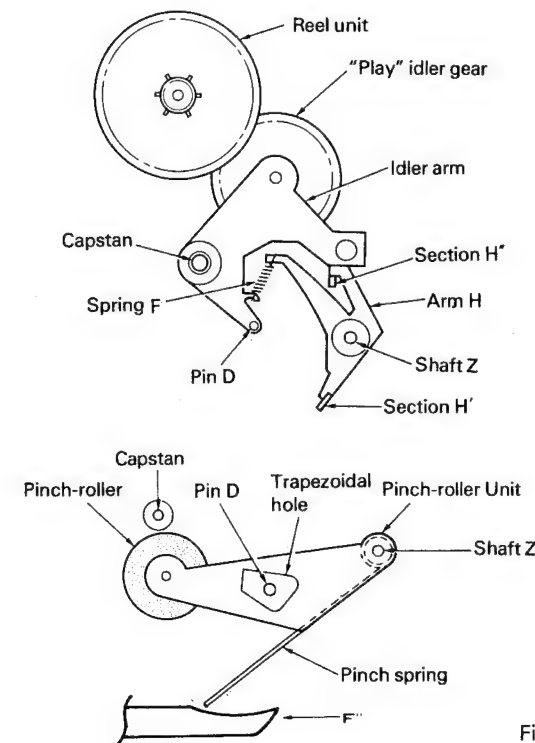
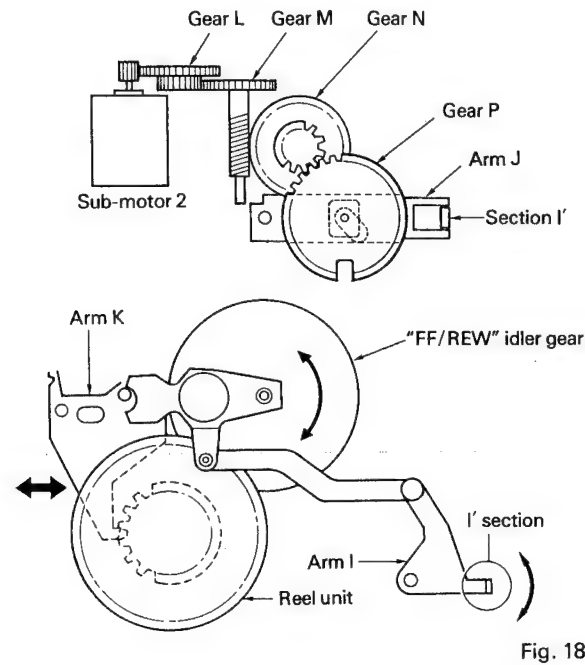


Fig. 17

- The sub-belt from sub-motor 1 goes through pulley gear "H", gear "I", gear "J" and turns gear "K". Head turning and head base positioning take place using the "K" unit (the projecting unit) of gear "K" and pin "B". There is a metal brush attached to the back of gear "K" which detects the passing through of all patterns and common patterns and stops sub-motor 1. This controls the head positioning, the head turning, the contact pressure of the play idler gear and the contact pressure of the pinch roller.
- Head turning at pin "B" takes place until gear "K" starts turning which brings the "K" part into contact with the lever "B", "B" part. (Fig. 16-3)
- Pin "B" engages with the arm "E" oval opening and rotates arm "E". The arm "E" sector gear is engaged with pin "C" and this turns the head. The head rotation pattern (Fig. 16-6) performs this operation inside a certain angle.
- When gear "K" turns it also pushes the lever "B", "B" part. The "B" part turns arm "F" and arm "G" counter-clockwise and advances head base with the arm "G", "G" part. (Fig. 16-2, 5)
- After the head base goes beyond the MS pattern (Fig. 16-6) position, the arm "F", "F" part pushes the pinch roller unit pinch spring and presses the pinch roller down onto the capstan. (Fig. 17)
- Simultaneously, the arm "F", "F" unit pushes the arm "H", "H" part. The "H" part lock releases when pushed, and the play idler gear comes into contact with the reel unit. Play operation begins because of this. (Fig. 16-5, Fig. 17)
- When going from play to eject, first, the pinch roller disengages from the capstan, and then using the pinch roller unit trapezoidal hole, releases the idler arm from the reel unit by means of pin "D". After that, the "H" unit again meshes with the idler arm and the "play" idler gear stops after completely disengaging from the reel unit.

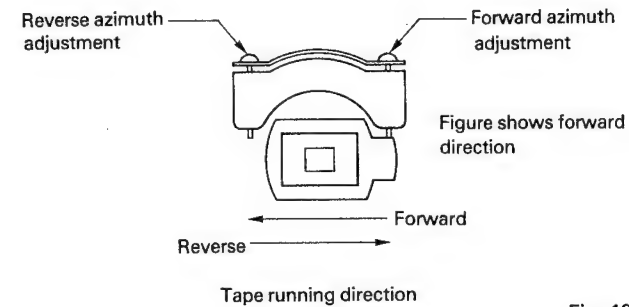
5. FF/REW Operation

1. As with the head operations a brush is attached to the back of gear "P" and using patterns and the brush, position sensing takes place and this controls the FF/REW operation.
2. Sub-motor 2 goes through gears "L", "M" and "N" and turns gear "P". When gear "P" turns, arm "I" rotates by means of arm "J". Arm "I" rotates the FF/REW idler gear and engages it with the reel unit.



3. ADJUSTMENT

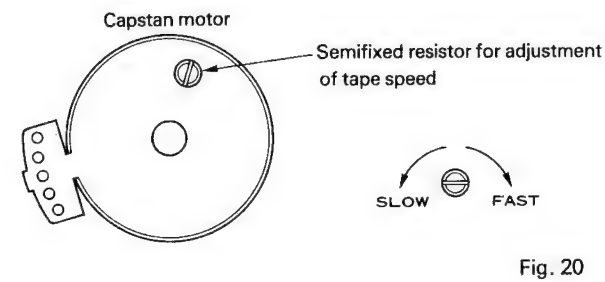
3.1 AZIMUTH ADJUSTMENT



• To Adjust

1. Play "A" side of STD-341A (10kHz, -20dB). Adjust each screw for maximum output in forward and reverse directions.
2. Play "B" side in forward and reverse directions to confirm adjustment.


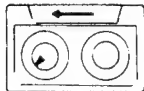
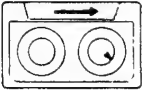
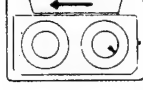
3.2 TAPE SPEED ADJUSTMENT



• To Adjust

1. Reproduce STD-301 (3kHz, -10dB). Adjust the semifixed resistor so that the frequency counter shows 3,010Hz (+30Hz, -30Hz).

3.3 CHECK POINTS OF CASSETTE MECHANISM

| | | |
|---|---|---|
| <p>Confirm the following items when replacing parts of the cassette mechanism.</p> | <p>■ Tape speed deviation:</p> $3,000 \pm \frac{90}{30} \text{ Hz}$ $(4.76 \text{ cm/s} \pm \frac{3}{1} \%)$ <p>Using an STD-301, measure the speed at the start and end of winding and see that a deviation remains within the limits each time. If values indicated by the pointer vary considerably, adjust to 70% of the minimum and maximum values. Measuring time shall be 5~6 seconds.</p> | <p>■ Wow and flutter:</p> <p>Less than 0.15% (WMS)</p> <p>Using an STD-301, measure the wow and flutter at the start and end of winding and take the maximum value. If values indicated by the pointer vary considerably, adjust to 70% of the minimum and maximum values. Measuring time shall be 5~6 seconds.</p> |
| <p>■ Fast forward and rewinding time:</p> <p>95~115 seconds</p> <p>Using a C-60, set to fast forward and rewind, and measure the time with a stop watch.</p> | <p>■ Winding torque:</p> <p>40~60g·cm</p>  <p>Using a cassette type torque meter (100 g·cm), measure the minimum value while in the play mode. Measuring time shall be 5~6 seconds.</p> | <p>■ F.F. torque:</p> <p>70~110g·cm</p>  <p>Using a cassette type torque meter (120 g·cm), measure the value when the tape stops in the F.F. mode.</p> |
| <p>■ REW torque:</p> <p>70~110g·cm</p>  <p>Using a cassette type torque meter (120 g·cm), measure the value when the tape stops in the REW mode.</p> | <p>■ Back tension torque:</p> <p>2.0~3.5g·cm</p>  <p>After setting in the REW mode without loading a cassette tape for 5 minutes, measure the back tension torque in the play mode, using a cassette type torque meter.</p> | <p>■ Cassette loading force:</p> <p>450~550 g</p> <p>Push the center of the cassette and measure the force with a tension meter (1 kg).</p> |

4.EXPLODED VIEW

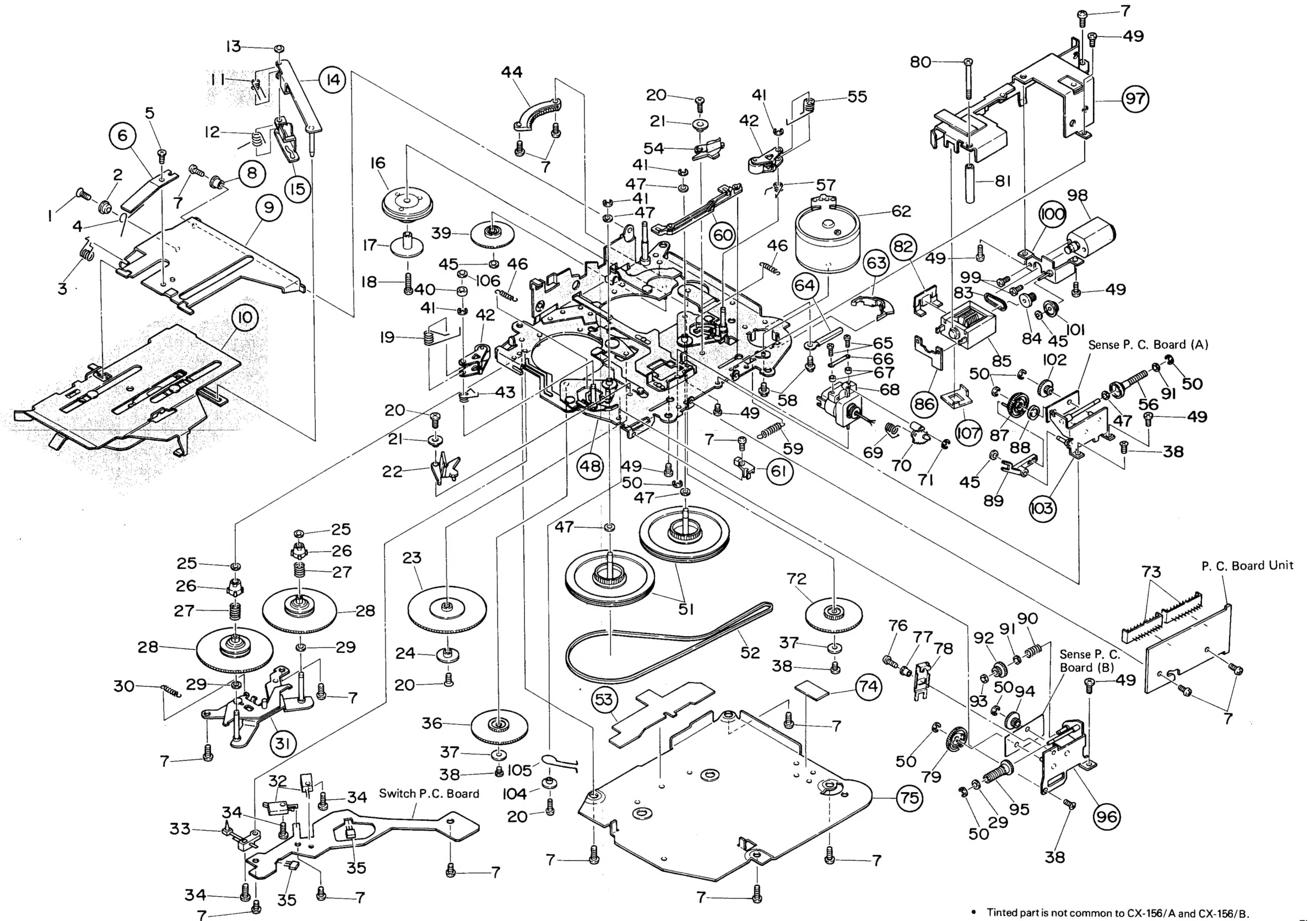


Fig. 21

NOTE:

- For your Parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★.

★ ★: GENERALLY MOVES FASTER THAN ★.

This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

- Parts whose parts numbers are omitted are subject to being not supplied.

| Mark | No. | Part No. | Description | Mark | No. | Part No. | Description |
|------|-----|--------------|---------------------------|------|------|--------------|-----------------------|
| | 1. | HBA-193 | Screw M1.4×3.5 | | 53. | | Insulator |
| | 2. | CLB-691 | Collar | | 54. | CNW-931 | Arm |
| | 3. | CBH-837 | Spring | | 55. | CBH-831 | Spring |
| | 4. | CBH-867 | Spring | | 56. | CNW-956 | Gear |
| | 5. | HBA-147 | Screw M1.4×1.4 | | 57. | CBH-833 | Spring |
| | 6. | | Spring | | 58. | PMS26P030FMC | Screw |
| | 7. | BMZ20P040FMC | Screw | | 59. | CBH-830 | Spring |
| | 8. | | Bush | | 60. | | Lever |
| | 9. | | Arm | | 61. | | Spacer |
| | 10. | | Holder Unit (CX-156/A) | ★ ★ | 62. | CXM-161 | Motor (Capstan) |
| | | | Holder Unit (CX-156/B) | | 63. | | Clamper |
| | 11. | CBH-836 | Spring (CX-156/A) | | 64. | | Clamper |
| | | CBH-887 | Spring (CX-156/B) | | 65. | CBA-173 | Screw M1.4×8 |
| | 12. | CBH-886 | Spring | | 66. | CBE-114 | Spring |
| | 13. | CBF-046 | Washer | | 67. | CNY-134 | Azimuth Rubber |
| | 14. | | Arm Unit | ★ ★ | 68. | CXD-758 | Head Unit |
| | 15. | | Arm | | 69. | CBH-829 | Spring |
| | 16. | CXD-388 | Gear Unit | | 70. | CNW-939 | Gear |
| | 17. | CLB-617 | Collar | | 71. | YE15FUC | Washer |
| | 18. | CBA-166 | Screw M1.7×8 | | 72. | CNW-943 | Gear |
| | 19. | CBH-832 | Spring | | 73. | CKS-534 | Plug |
| | 20. | HBA-310 | Screw M2×3.5 | | 74. | | Insulator |
| | 21. | CLB-612 | Collar | | 75. | | Cover |
| | 22. | CNW-930 | Arm | | 76. | HBA-158 | Screw M1.4×5 |
| | 23. | CNW-944 | Gear | | 77. | CLB-750 | Collar |
| | 24. | CLB-616 | Collar | | 78. | CNH-004 | Arm |
| | 25. | CBF-135 | Washer | | 79. | CNW-953 | Gear |
| | 26. | CNW-932 | Collar | | 80. | CBA-165 | Screw M2 |
| | 27. | CBH-827 | Spring | | 81. | CLB-749 | Spacer |
| ★ ★ | 28. | CXD-384 | Reel Unit | | 82. | | Spacer |
| | 29. | CBF-088 | Washer | ★ ★ | 83. | CNT-114 | Belt |
| | 30. | CBH-868 | Spring | | 84. | CNW-941 | Gear |
| | 31. | | Bracket Unit | ★ ★ | 85. | CXM-351 | Motor (Gear Position) |
| ★ ★ | 32. | CSN-091 | Switch (70μs, CST IN) | | 86. | | P.C. Board |
| ★ ★ | 33. | CSN-089 | Switch (CST SET) | | 87. | CNW-952 | Gear |
| | 34. | CBA-172 | Screw M1.7×5.5 | | 88. | CNN-481 | Spacer |
| ★ | 35. | SDME106A | Magnetic Resistive Device | | 89. | CNW-958 | Arm |
| | 36. | CNW-943 | Gear | | 90. | CBH-866 | Spring |
| | 37. | CLB-615 | Collar | | 91. | HBF-116 | Washer |
| | 38. | HBA-209 | Screw M2×2 | | 92. | CNW-954 | Gear |
| | 39. | CNW-950 | Gear | | 93. | CBF-135 | Washer |
| | 40. | CLB-690 | Roller | | 94. | CNY-077 | Gear |
| | 41. | EBG-001 | Washer | | 95. | CNY-148 | Gear |
| ★ ★ | 42. | CXD-387 | Pinch Roller Unit | | 96. | | Holder Unit |
| | 43. | CBH-834 | Spring | | 97. | | Guide |
| | 44. | CNW-951 | Gear | ★ ★ | 98. | CXM-452 | Motor (Head Position) |
| | 45. | CBF-126 | Washer | | 99. | HBA-244 | Screw M1.4×1.6 |
| | 46. | CBH-835 | Spring | | 100. | | Bracket Unit |
| | 47. | HBF-179 | Washer | | 101. | CNY-075 | Pulley |
| | 48. | | Chassis Unit (CX-156/A) | | 102. | CNW-955 | Gear |
| | | | Chassis Unit (CX-156/B) | | 103. | | Holder Unit |
| | 49. | HBA-175 | Screw M2×2.5 | | 104. | CLB-760 | Collar |
| | 50. | YE12FUC | Washer | | 105. | CBH-893 | Spring |
| | 51. | CNW-942 | Flywheel | | 106. | HBF-180 | Washer |
| ★ ★ | 52. | CNT-111 | Belt | | 107. | | Cover |

5.CONNECTION DIAGRAM

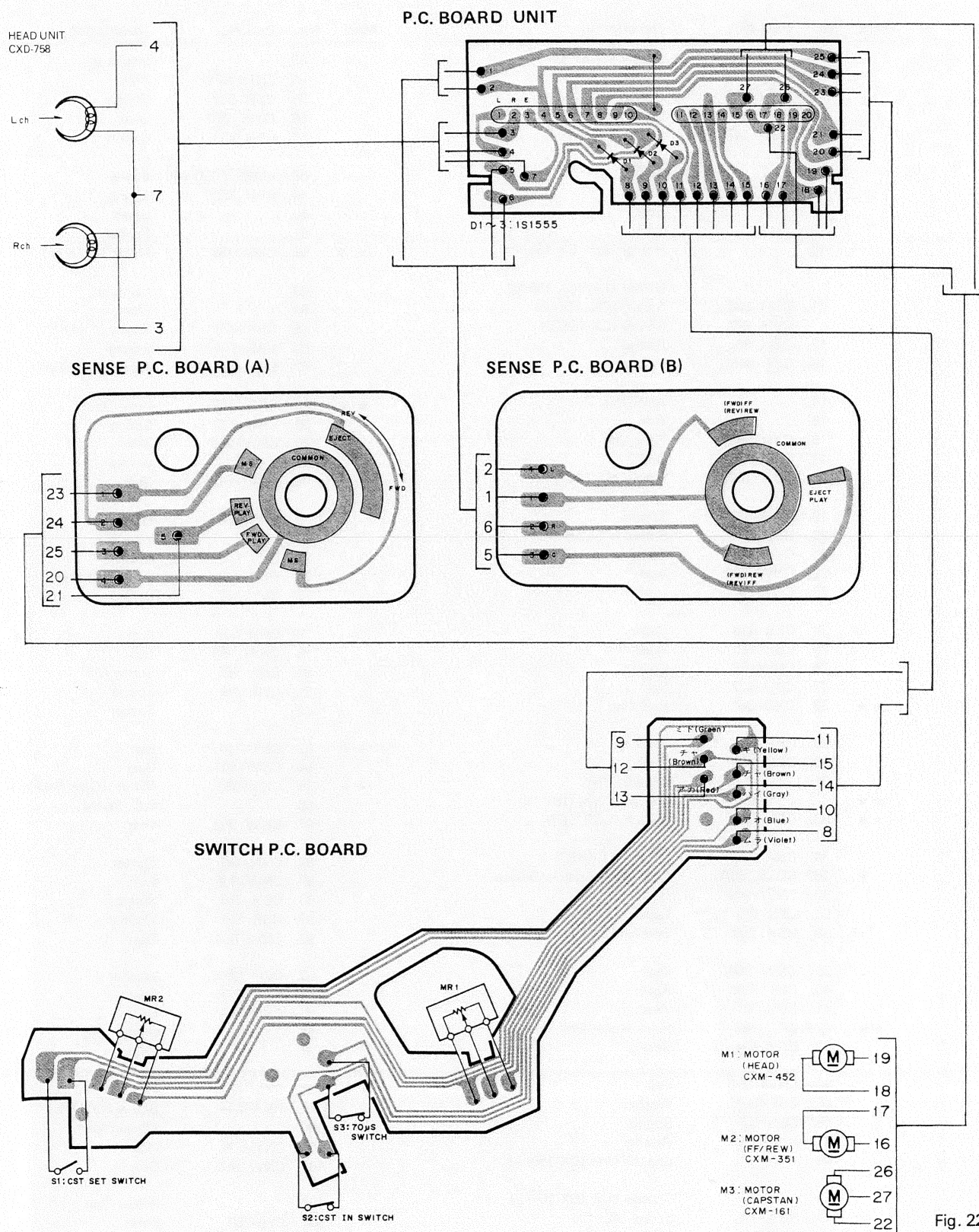
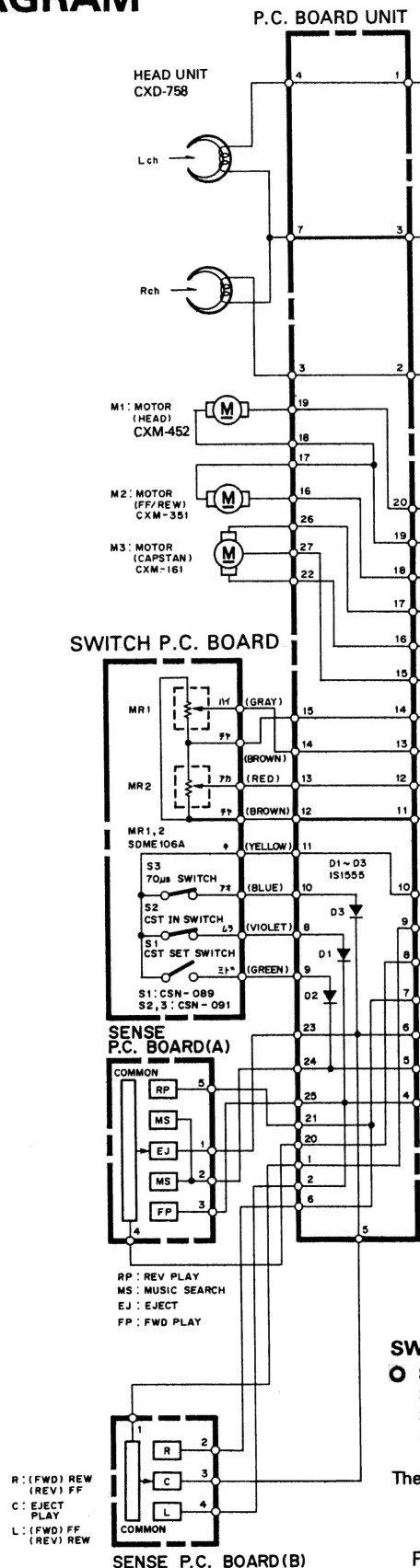


Fig. 22

6. SCHEMATIC CIRCUIT DIAGRAM



SWITCHES

○ SWITCH P.C. BOARD

- S1: CST SET SWITCH..... ON—OFF
- S2: CST IN SWITCH..... ON—OFF
- S3: 70 μ s SWITCH..... ON (120 μ s)—OFF (70 μ s)

The underlined indicates the switch position.

7. ELECTRICAL PARTS LIST

Switch P.C. Board

| Mark | Symbol & Description | Part No. |
|------|------------------------------------|----------|
| ★ ★ | S1 Switch (CST SET) | CSN-089 |
| ★ ★ | S2, S3 Switch (CST IN, 70 μ s) | CSN-091 |
| ★ | MR1, MR2 Magnetic Resistive Device | SDME106A |

P.C. Board Unit

| Mark | Symbol & Description | Part No. |
|------|----------------------|----------|
| ★ | D1—D3 | 1S1555 |

Miscellaneous Parts List

| Mark | Symbol & Description | Part No. |
|------|----------------------|----------|
| ★ ★ | Head Unit | CXD-758 |
| ★ ★ | M1 Motor (Head) | CXM-452 |
| ★ ★ | M2 Motor (Gear) | CXM-351 |
| ★ ★ | M3 Motor (Capstan) | CXM-161 |

Fig. 23